

MANUFACTURERS RECORD



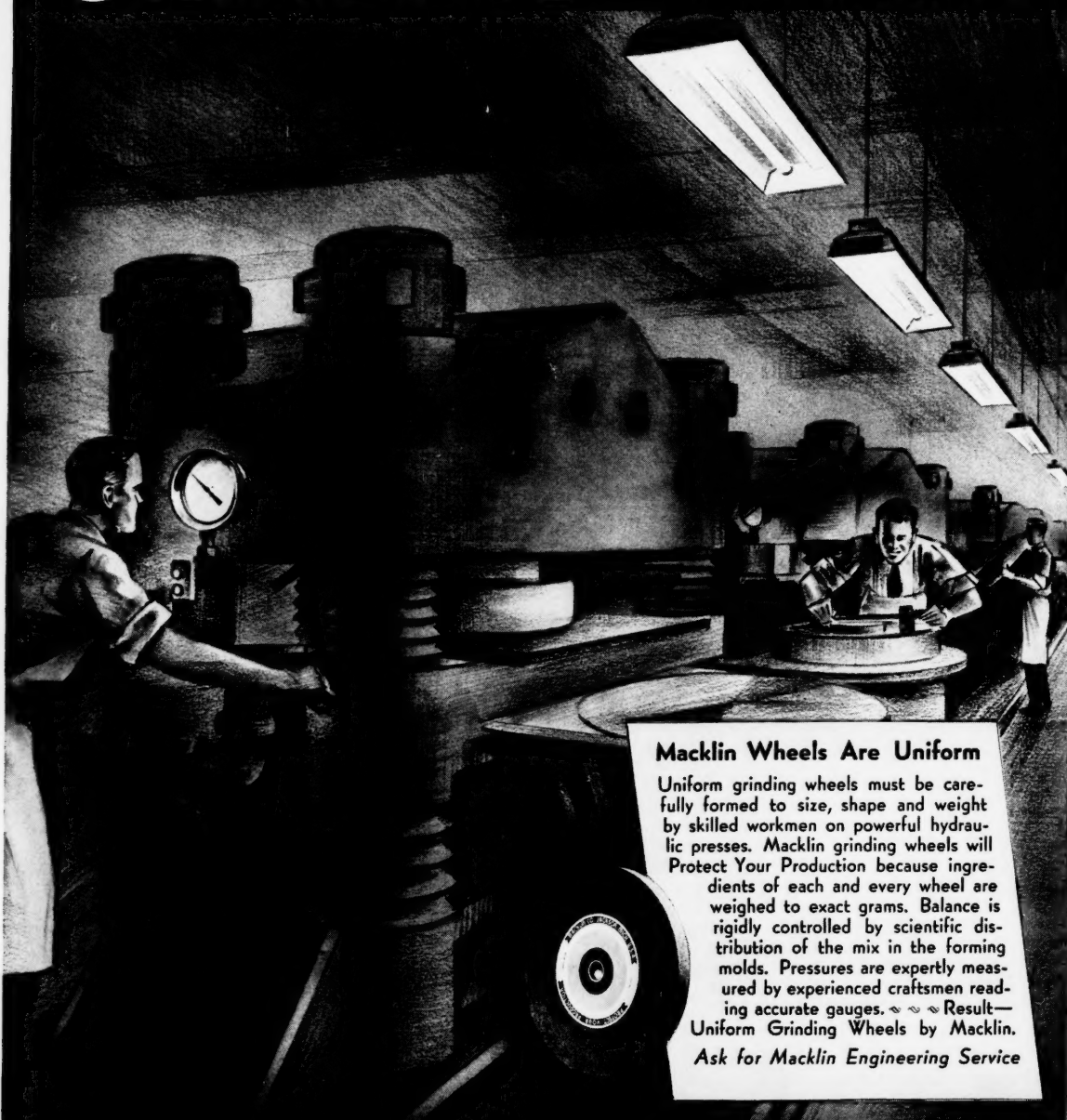
Our Life

For the third time in its history the Manufacturers Record has felt it necessary to step out of its customary role as a business paper and to talk and write about "national welfare" instead of "business opportunity."

A crisis no longer faces our nation. It is upon us. Our citizens are no longer farmers, labor unionists and business men. They are Americans.

It is time to think, not about you and me, but about the nation that makes our life possible.

MACKLIN GRINDING WHEELS



Macklin Wheels Are Uniform

Uniform grinding wheels must be carefully formed to size, shape and weight by skilled workmen on powerful hydraulic presses. Macklin grinding wheels will Protect Your Production because ingredients of each and every wheel are weighed to exact grams. Balance is rigidly controlled by scientific distribution of the mix in the forming molds. Pressures are expertly measured by experienced craftsmen reading accurate gauges. ~ ~ ~ Result—Uniform Grinding Wheels by Macklin. Ask for Macklin Engineering Service

MACKLIN COMPANY

Manufacturers of GRINDING WHEELS — JACKSON, MICHIGAN, U. S. A.

Distributors in all principal cities

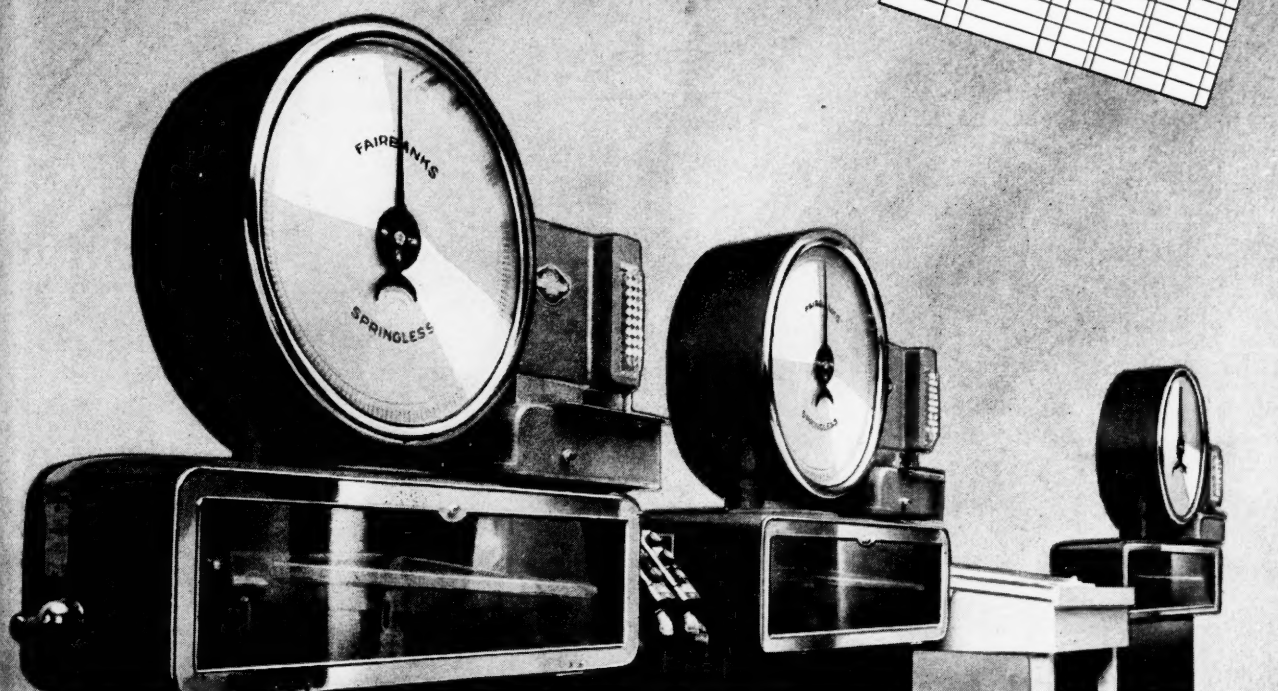
Sales Offices: — Chicago — New York — Detroit — Pittsburgh — Cleveland — Cincinnati — Milwaukee — Philadelphia

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Scales that see

... and keep books!



IT costs money to be inaccurate with "tonnage"—and it costs more money to be s-l-o-w.

In one of the most modern coal preparation plants in the world, Elkhorn Coal Company, Wayland, Ky., you will find a battery of the most modern scales handling "tonnage" at high speed.

These Fairbanks Scales with "electric eyes" shut off flow to hoppers automatically when the pre-set weight is obtained. A printed record is made of each operation automatically, and an ingenious keying system credits the tonnage to the man who mined it.

To make errors in weighing well-nigh impossible, to fit weighing speedily into the production flow, to protect alike the buyer, seller, and all whom weighing affects is the aim of this, the most experienced and most modern organization of scale makers.

There are Fairbanks Scales in types for your every weighing need... and Fairbanks Scale Engineers are available at your call.

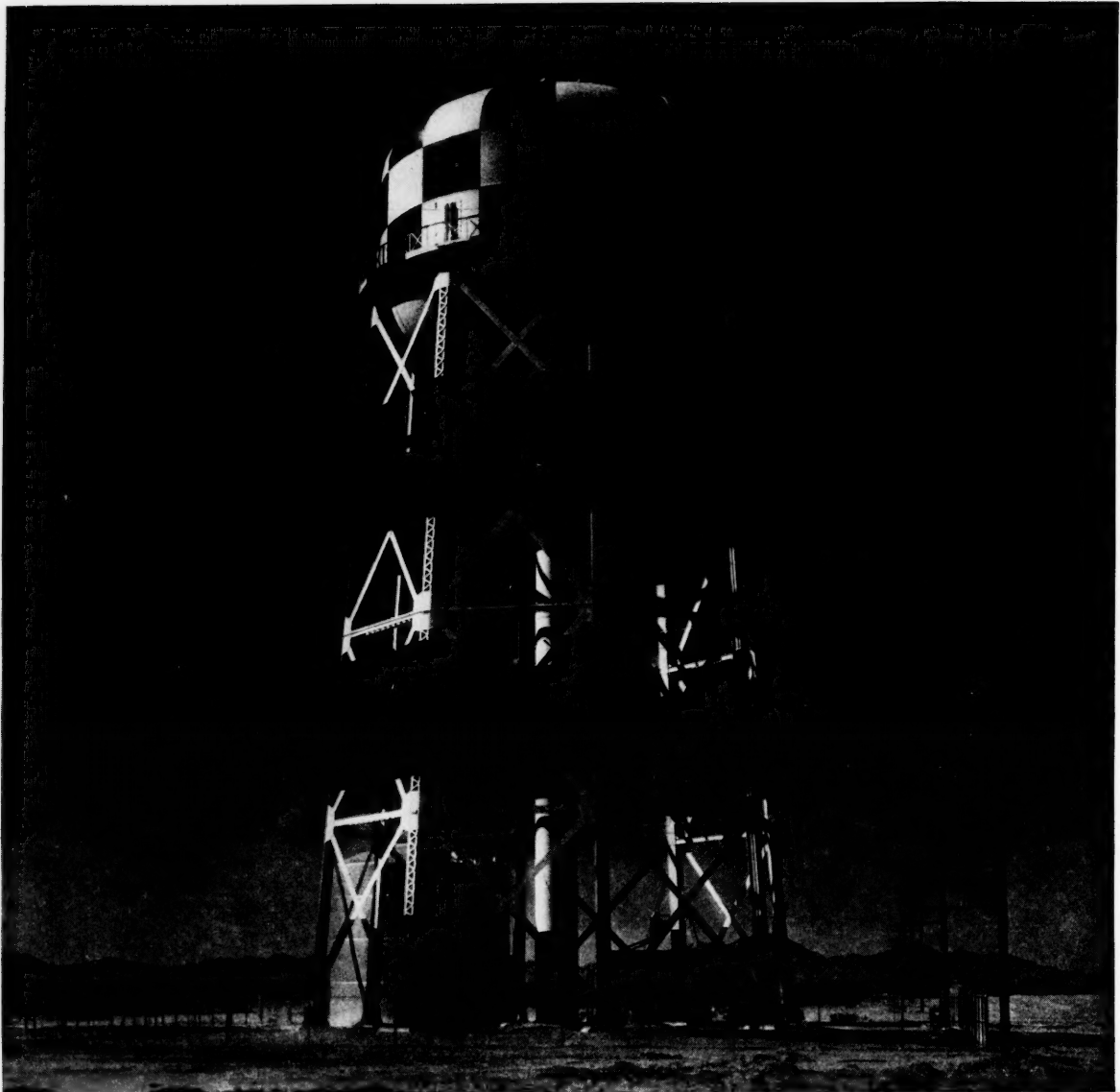
Fairbanks, Morse & Co., Dept. A-93, 600 S. Michigan Ave., Chicago, Illinois. Branches and service stations throughout the United States and Canada.

We Want To Help You

It is our desire to do everything we can to aid in the speed-up of American production. Our scale engineers can possibly suggest new and more efficient use of your present scales or modification which will expand their capacity.

FAIRBANKS · MORSE SCALES

DIESEL ENGINES ELECTRICAL MACHINERY RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS



ELEVATED STEEL WATER TANKS at air fields and training camps

To the casual reader, the structure in this view is just an ordinary water tank, the kind that has been used extensively for years to provide gravity water pressure for municipal and industrial service. The sight of it, however, would mean a lot more to many of the men in our air force. It would carry them back to the field where they received their training—where they

won their wings—for the job that is ahead of them.

To win the battles ahead of us we must have planes. To use planes effectively we must have training fields which, in turn, must have complete facilities. Elevated water tanks are providing dependable water service for air fields and camps all over the country, for all branches of the service.

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MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the
South and Southwest as the Nation's Greatest Material Asset

N. A.

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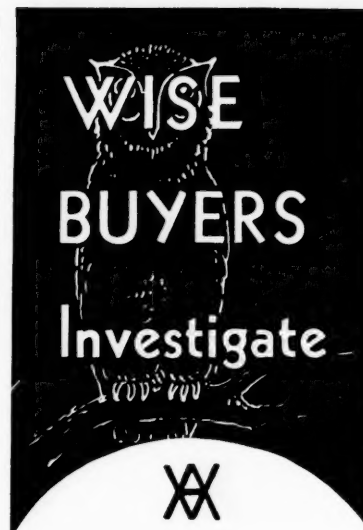
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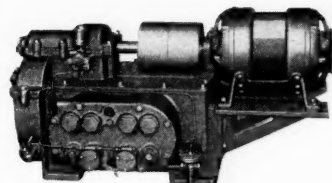
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JUL 6 1943

JANUARY NINETEEN FORTY-TWO



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Westinghouse . . .
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**The Nation's
Production
Lines ...**

are **FED
with COAL**

- This war is a battle of materials ... a battle of American production lines—that are fed with coal.
- For coal is the greatest source of energy and power; coal and its by-products are essential in the manufacture of steel for guns, tanks, ships and planes; for chemicals and explosives, and a thousand and one other products for the Arsenal of Democracy.
- The Norfolk and Western Railway serves a territory that produces 50,000,000 tons of highest quality bituminous coal annually — one-tenth of the nation's output — coal that must be available ... that must be moved every hour of every day and night. The Norfolk and Western has the cars, the motive power and the manpower to do the job ... smoothly and efficiently ... and is doing the job of feeding millions of tons of coal to the production lines of America.

**Norfolk
and Western
Railway**

CARRIER OF
FUEL SATISFACTION

N. & W. RY.

V

As the Editor Sees It

Thoughts About War and Other Things

A lot has been written about the productive capacity of America, but actually it is so vast that none of us fully comprehend it. The President has called for the greatest all-out effort the world has ever seen, and industry has promised to produce.

We are already making steel and other fundamentals in excess of all the Axis powers, and our equipment and advanced production methods are unequalled elsewhere. With strikes in the discard for the duration and the country solidly united in a common purpose, the output of equipment for the armed forces from now on will not only surpass all previous ideas, but is likely to prove disquieting to those who have made war upon us.

Confusion in a time of hurry is almost inescapable, and this is especially true in a democracy. This, however, does not mean that there should be hysteria, or petulance and discontent if things do not go exactly as we think they should.

At present the country is stirred about the rubber shortage and the fear that it will be impossible to get automobile tires. If the supply is entirely shut off it will affect seriously many millions who order their lives to a large degree by automobile transportation. Homes of former city dwellers have been built miles away from any other form of transportation. Workers use the automobile as the only means of going to their jobs at distant points, and yet perhaps we are not as bad off as it would seem at first.

A prominent tire manufacturer says we have enough rubber, with careful use of tires and retreading, to last us two and a half years, by which time synthetic tires will be on the way in quantity.

News from Washington indicates that there will be less wool for clothing, and promptly manufacturers of winter cloth say a perfectly satisfactory garment, that will perhaps hold its shape better and give sufficient warmth, can be made from a mixture of wool and cotton. The ladies were worried a while ago about their

MANUFACTURERS RECORD FOR

silk stockings, but the substitutes answer every purpose.

When the country thinks of what its young men are facing, hysteria about a lot of things will disappear, and whether little business or big business gets all the supplies it thinks it ought to have or not, it will have the satisfaction of knowing that whatever sacrifice it has to make is for the common good, and that is a big thing.

As we look ahead in the days to come, they ought to be very wonderful days. Some of us may not be here to enjoy them, but the youngsters to whom we will turn over a strange world to be re-shaped while having a difficult task will have a wonderful opportunity.

We refer often in this place to the magic of the scientist and the inventor. The value of the education given youth in the last two generations is finding expression in work that will help to make the new world. This is already being done, and in ways useful not only for war, but afterwards in the days of peace. Great industrialists now are planning how scientific attainments and improved production will lower the price of products for a nation that has had great expense of war to bear.

Back of it and above it is the tremendously satisfying thought that having come through the fire, there has emerged an America united as never before—united for a common purpose and with a greater appreciation of realities and with character and vision that make life worthwhile.

We have been a very wasteful people. Perhaps life has been too easy. We have been prodigal of resources that have been treasured and saved to the tiniest fragment in other lands. It has shocked many an American when he has seen for the first time the fagot-gatherers of France and realized how wasteful we have been of our great forests. Now we must save waste paper, tin foil, tin cans, scrap metal, rubber, old rags and a variety of things to which we have given little thought.

Does anyone imagine that we will come out of this all-out effort we are making and be as wasteful as before? Maybe we will some years ahead, but not for a while anyhow.

(Continued on page 8)



**So that Wings may
come to Production**



Through wide-flung doors, Janus* looks out on a nation unified for production—and on the Engineer *planning and doing* so that wings may come to production.

To the Engineer, time is always important, but transcendently so in a period of stress. It is part of his training to measure accomplishment against the drumbeat of time.

He measures accomplishment not just in terms of construction and production, but against factors like maintenance and obsolescence of building, of process, of product, and against the changing needs of a nation.

It is in these factors that the enduring value of his vision and experience express themselves to your advantage.

* The doors to the temple of Janus were never closed, except in time of complete peace. He had two opposite faces, so he could look back to the past and on to the future. Because the first hour of the day, the first day of the month and the first month of the year (January) were dedicated to him, he symbolized the period of planning.

**J. E. SIRRINE
& COMPANY**
Engineers
for 40 years

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INDUSTRIAL PLANTS - PLANS AND DESIGNS - POWER
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A New Formula for Profits at CHARLESTON, SOUTH CAROLINA

The \$50,000,000 Federally-financed, Santee-Cooper power and navigation project now being completed thirty miles from Charleston will be on a 12-foot waterway from Columbia, the capital of South Carolina, to Charleston, one of the finest ports on the Atlantic. This power development will have a yearly output of 700,000,000 kilowatt hours of cheap electrical energy; and it can supply up to 300,000,000 gallons per day of cheap water for manufacturing.

These basic factors occur nowhere else in the United States, at tidewater. Combine them with the transportation advantages of water-competitive freight rates between this seaport and the interior; figure how cheaply eastern markets can be reached through the Intra-coastal Waterway which touches every break-bulk port between Norfolk and Boston; consider that Charleston is the nearest American port to most foreign markets; add a mild climate, good labor and many local raw materials, and you will get a rare combination for cheap manufacture in this old, historic and livable community.

If you have to build new facilities to supply defense needs, your investment will have post-war value only if you can deliver your product cheaply under peace-time competition. Study Charleston before you locate. We will place the services of an experienced industrial engineer at your disposal for a thorough and impartial analysis of every factor affecting your investment, operating and distribution costs.

Charleston Industrial Bureau
50 Broad Street
Charleston, S. C.

As the Editor Sees It

Thoughts About War and Other Things

(Continued from page 7)

As our boys leave for the camps, and perhaps later on go into other lands, they do not want our sympathy as Mr. Cameron of the Ford Motor Co. rightly said, but they must accept our praise. We are proud of them—proud of the grim determination that makes them eager to hold the flag aloft. Does anyone imagine that that flag will not mean something different to them from anything it ever has meant in their sheltered life of other days? Out of the fires will come a tested and a nobler national character, capable of great things for ourselves and mankind. This is not idle thinking. It is the firm belief of those who, having faith in an all wise Providence, realize that a new spirit, a new life of great possibilities will be born of the present travail.

The President in his annual message to Congress expressed the indomitable purpose of America to fight the war with the utmost possible vigor, and to carry it to the enemy on their home soil that victory may be quickly and surely gained.

The President's words were not only a call to arms, but a call to service of every citizen, old and young, and he frankly spoke of what it would mean in the way of changes in the lives of every man, woman and child in the United States.

Every man, every nation, for the accomplishment of a great purpose, requires a specific outlook, an objective, an end that justifies the means. The objective is clearly defined. No sacrifice is too great to attain it.

In our easy-going way it took the Jap assault to bring us to a realization of what confronted the country. The world is torn asunder by mad men intent upon foul ends. It is not a world in which America and all that America represents could find a place other than on the side of those who believe in decency and religion and human freedom.

America today even as parents part with their sons and billions follow billions in pyramiding cost has become a land of unified purpose, a land, as we are saying elsewhere, of "you and me," bent upon the winning of a goal of high promise in a world of peace.

Letters received at this office from business firms indicate that a general sales tax is regarded in every way as more desirable than a further complicated tax schedule which is apt to be burdensome in detail and costly in time.

The position of the MANUFACTURERS RECORD on the sales tax is well known. We have advocated it consistently and persistently as the fairest of all taxes when levied at the point of final consumption. Politicians have a mistaken idea that their constituents are opposed to it, and therefore in many instances they do not view it favorably.

This is a time when political considerations should give way to winning the war, and as higher taxes are necessary they should be levied simply and directly upon every citizen.

A sales tax, which many of the states have used successfully, will be approved by the people.

The automobile industry has been asked by the Army and Navy Departments to accept orders for war equipment amounting to more than \$5,000,000,000. These are in addition to defense contracts of over \$4,000,000,000 previously awarded these manufacturers.

The new \$59,000,000,000 war program has caused amazement abroad.

The extent of America's productive power is to be tested as never before.

The recent trip of the Pacific Clipper from New Zealand to New York was a record even for these pioneers in trans-ocean journeys. Caught in New Zealand December 7 at the time of Japan's attack, the home port of New York was reached January 6. Thirty-two thousand miles were flown by this giant 42½-ton airship without the aid of air beacons or radio guidance.

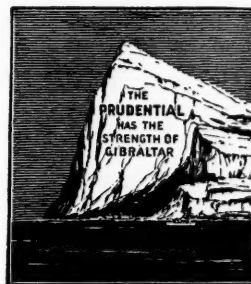
Seven continents were visited in searching out the safest route, and the equator was crossed five times back and forth. In all the journey only 1½ hours were required for mechanical adjustments.

It made the first aerial crossing ever made between the mid-Pacific islands of New Caledonia and the Australian mainland, thence to Africa, crossing the Timor Sea and the Netherlands East Indies to the Indian Ocean. After the Arabian Sea and the Gulf of Aden, 3,000 miles were flown across the African jungle to a west coast port. Following that was the trip across the South Atlantic to Brazil and finally 5,000 miles to New York with only one intermediate stop.

What's your worth to your family?

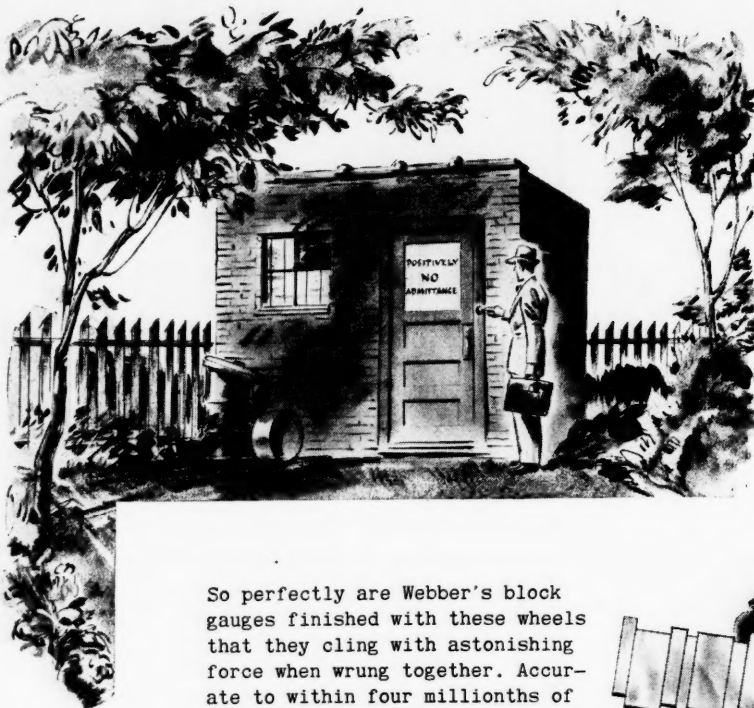
How much income from your life insurance should there be partly or wholly to take your place as their support?

Give your dependents
Prudential Protection



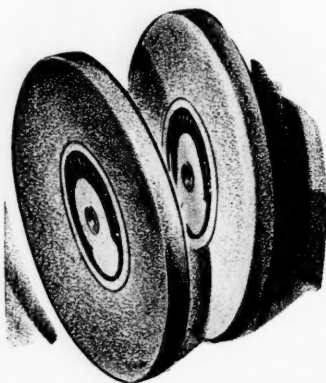
The Prudential
Insurance Company of America
Home Office, NEWARK, N. J.

This is one of the most important manufacturing plants in America!



In this backyard shack George Webber of Cleveland is cracking a major defense bottleneck. He has found a way to produce in quantity those vital precision instruments known as block gauges. Few men have ever known how to finish these small blocks of steel to the microscopic accuracy required for modern mass production. Now Webber's secret machine turns out 37 sets, of 81 blocks each, every week with the aid of Aloxit Brand Aluminum Oxide Grinding Wheels.

So perfectly are Webber's block gauges finished with these wheels that they cling with astonishing force when wrung together. Accurate to within four millionths of an inch, they are the standard of measurement for thousands of precision parts essential to America's defense program.



Our ability to furnish the right product for any abrasive need is the result of outstanding research, engineering and manufacturing facilities. Perhaps we can help you speed up production and cut costs. The Carborundum Company, Niagara Falls, New York.

Carborundum and Aloxit are registered trade-marks of and indicate manufacture by The Carborundum Company.





"We express our sincere appreciation of the splendid manner in which you have taken care of our needs, especially so during the last hectic months."



"We want you to know that we appreciate not only the prompt shipment, but also the painstaking care with which you handled the transaction."



"In case an emergency of a similar nature again arises, it is a pleasure to know that we can depend upon co-operation of this kind."



When minutes count ...it pays to call Scully!

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Cold Finished Bars, Carbon
and Alloy grades
Wire
Cor-Ten and Man-Ten Shapes,
Sheets and Plates
Abrasion-Resisting Sheets
and Plates
Eaves Trough, Conductor Pipe

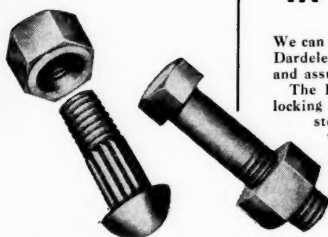
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We can offer immediate shipment of both Dardelet Rivet Bolts and Dardelet Machine Bolts. These bolts save valuable time and labor and assure permanently tight bolts.

The Dardelet Rivet Bolt is a ribbed bolt with Dardelet self-locking thread, and is widely used for field erection of structural steel. Has recessed nut. Bolt is driven in and nut is applied with wrench. Economical and strong.

The Machine Bolt with Dardelet self-locking thread is for general use where vibration is present.



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Distributors of Steel and Steel Products

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UNITED STATES STEEL

JANUARY NINETEEN FORTY-TWO

11

Our Mutual Task

THERE can be no better time than this beginning of 1942 to thank our customers for their unfailing patience and the consideration they have shown in the past twelve months toward our efforts to supply the myriad emergency demands for steel.

Today you as consumers and we as producers of steel have a mutual task of achieving the maximum output of materials for war. We must also produce materials for the indispensable minimum of goods for our domestic economy.

The coming of active warfare has made our mutual task as the year opens increasingly arduous. Bethlehem is exerting the utmost effort to meet unprecedented demands. It is our purpose to serve our Government to the utmost of our ability in this emergency. More than 800,000 tons of steel capacity has already been added, together with accompanying increase in coke

ovens and blast furnaces, and expansion of finishing facilities. Further expansions in ingot capacity, and in rolling mills, forges and shops, are anticipated. We are purchasing a wide variety of materials from more than 10,000 suppliers. Our employment rolls have been stepped up to more than 180,000.

With all of this, the demand for our products continues unabated, and 1942 will continue to require the full cooperation and understanding between steel maker and steel user.

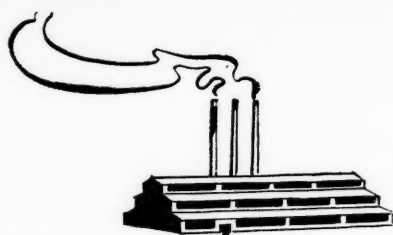
It is a gratifying and typical characteristic of American industry that all the needs of our Government and of our national purpose have been met on all sides during the past year with vigor and cheerfulness.

Now is added a still greater and unremitting determination. We know that there will be the whole-hearted cooperation of all, so that what needs be done, shall be done.

*"Enough, if something from our hands have power,
To live, and act, and serve the future hour."*

BETHLEHEM STEEL COMPANY





Imagineering

Imagineering, *n.* The fine art of deciding, where do I go from here?

Right while we, everyone, are working at top speed for Defense, we are stared in the face with this sober question: How can we maintain employment when this war is over?

We here at Alcoa are working to the limit with everything we've got to make the aluminum needed for victory. We know no other duty. We know no answer except work . . . work to win through to peace.

But, Americans look ahead, too. They see that jobs for all are the first essential to a peaceful peace. But national committees and planning boards cannot make jobs. Only Imagineering can do that.

We have coined the word to pin down the thought that it is the individual executive, daring to let his imagination soar, and then engineering it down to earth—it is you doing just that to your business, who will win the peace for yourself, and for America.

Alcoa Aluminum is the liveliest tool for you to do your Imagineering with.

Start with the bald facts that what America must have when this thing is over is a low price structure, new things to make and use, new services to render, new ways to make and do old things.

Match the new low prices of aluminum, the new techniques, the new alloys and the old fundamentals of light weight and all the rest, against what you yourself face, and what America needs, and you have found the groove to let your Imagineering run in.

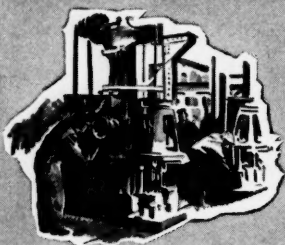
Two can run better than one in that groove. We have the old-fashioned idea that if we can help you look at your future audaciously in terms of the product we make, that teamwork will help us both employ more men at a time when America is going to need employment. Aluminum Company of America, Pittsburgh.

ALCOA ALUMINUM



JANUARY NINETEEN FORTY-TWO

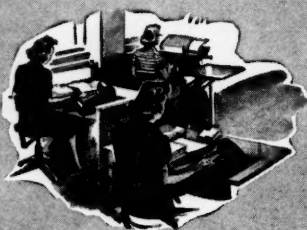
13



MATERIALS



MANPOWER



FIGURES

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It takes figures—accurate and up-to-the-minute—to make production plans . . . to keep materials moving toward scheduled points of assembly . . . to meet payrolls promptly . . . to provide management with the statistical controls on which to base quick decisions. Today, when minutes count, both government and industry are using Burroughs Statistical, Forms Writing, Book-keeping, Calculating and Adding Machines to meet these vital figuring needs in less time, with less effort, and at less cost.

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Towers for Power *by* Tower Specialists

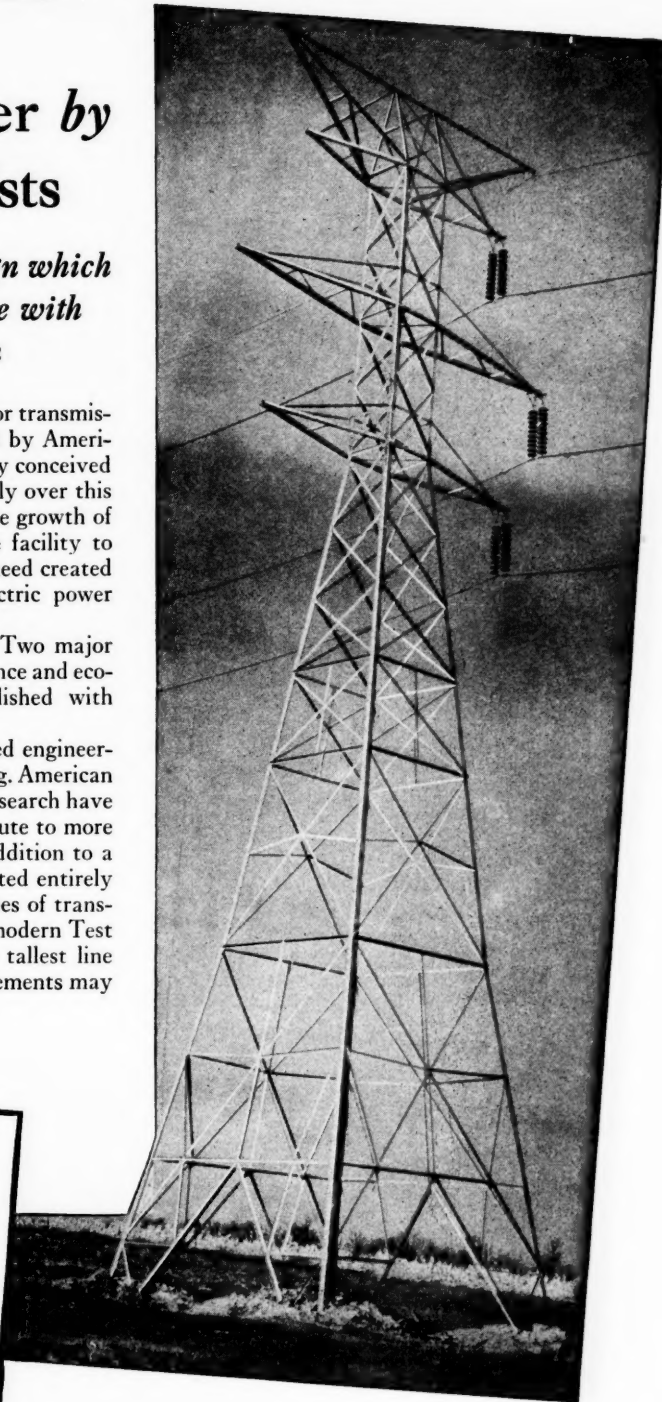
Showing a recent and new design which combines graceful appearance with economy in construction

IT has been 36 years since the first towers for transmission lines were designed and constructed by American Bridge Company. Today, the towers they conceived dot every imaginable kind of terrain, not only over this broad land, but over many others. This is the growth of a specialty whose experts have shown rare facility to meet every kind of changing condition and need created by the rapidly increasing demand for electric power transmission.

The tower illustrated is a case in point. Two major desires dictated its design—pleasing appearance and economical construction. Both were accomplished with every consideration for efficiency.

Experience, facilities and highly specialized engineering are the prime requisites for tower planning. American Bridge Company offers them all. Out of its research have come many patented features which contribute to more effective and economical construction. In addition to a complete plant, ample in capacity and devoted entirely to the fabrication and galvanizing of all types of transmission towers, it has the largest and most modern Test Frame in the country for testing even the tallest line towers in present use. Whatever your requirements may be, these resources are at your service.

BUILT TO CARRY 132 K.V. double-circuit, inter-connection lines in Ohio and Indiana, this American Bridge Company design incorporates many up-to-date features, such as a flaring base, greater height of ground wires, horizontally staggered alignment of conductors to provide effective cable clearances under sleet conditions, and standard American Bridge earth footings.



AMERICAN BRIDGE COMPANY

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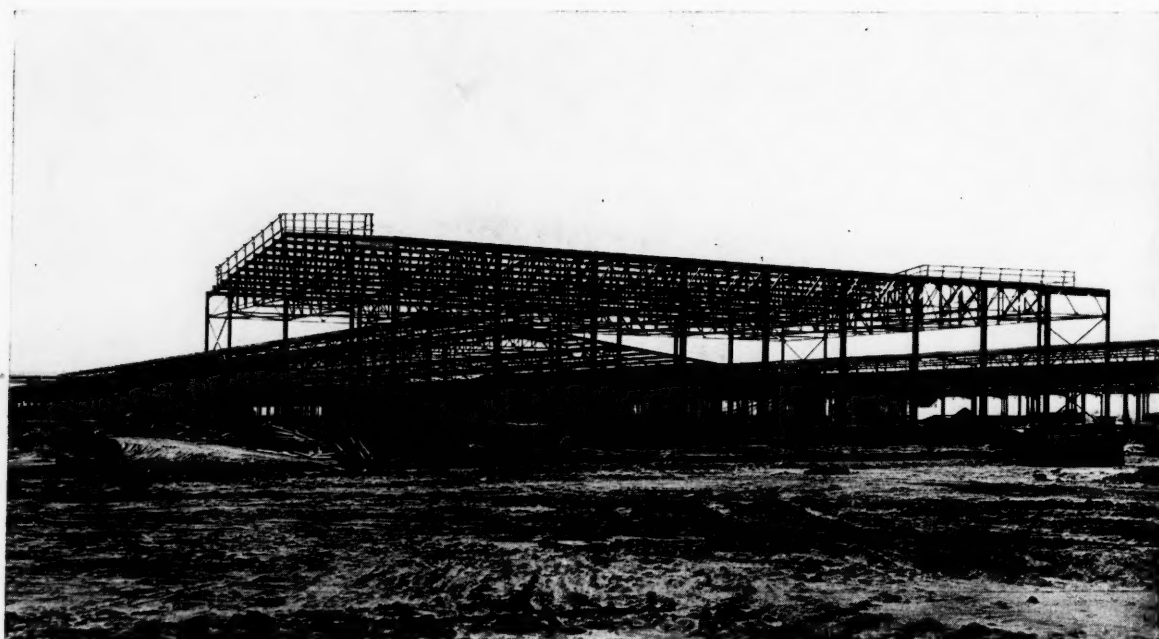
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UNITED STATES STEEL

JANUARY NINETEEN FORTY-TWO

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Three plants strategically located, operated in complete coordination under the direction of one compact and experienced organization, is a Virginia Bridge structural steel fabricating advantage.

Multiple-plant (we call it split fabrication) scheduling for simultaneous fabrication is used when the steel tonnage involved and the requirements of the job demand unusual performance. It is literally a gang-up of men and facilities for quick results. Many of today's important construction projects throughout the South, Southeast and Southwest are moving faster because of this 3-plant advantage.

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VIRGINIA BRIDGE COMPANY

(South's Largest Structural Steel Fabricator)

Roanoke

Birmingham

Atlanta

Memphis

New York

Dallas

UNITED STATES STEEL



“Froth”

All of us are glad to make personal sacrifices for our nation especially when our nation is in an all-out war.

Our public servants who, once elected to high office, should be our leaders, could set each one of us an excellent example in patriotic frugality by eliminating the “froth” from the alphabetical monstrosities listed below. Not all are “froth.” But do you know that USMC does not mean United States Marine Corps?

AAA	CSB	FAA	FERA	FTC	NYA	PBA	SEC
ADA	CSC	FAC	FHA	FWA	OADR	PCND	SPAB
BAC	DCB	FBI	FLA	HOLC	OCD	PRA	SSB
BCD	DPA	FCA	FPC	ICC	OEM	PWA	TVA
CAA	DPC	FCC	FRS	NDMB	OFAR	REA	USHA
CCC	EDB	FCIC	FSA _d	NLRB	OGR	RFC	USMC
CEA	EHFA	FDA	FSA _g	NMB	OPA	RRB	WFC
CND	EOP	FDIC	FSCC	NRPB	OPM	SCS	WPA



Official Photo, U. S. Army Air Corps

The South's War Effort and Private Industry

The following articles summarize the development of war industries and army construction since the defense program started in the South. A major part of this has been undertaken during 1941. It is coupled with the development of other industries in the South during last year. As a matter of fact, many of the war industry plants are built and operated by private enterprise as permanencies in this region. For clarity and convenience the account is divided into nine classifications. Five of these—ordnance, aircraft, ships, power and steel, are presented here. The remaining four sections—light metals, chemical process industries, army construction and petroleum, will appear in the February Manufacturers Record.—Editor.

by

S. A. Lauver

News Editor

AIRCRAFT

No fledgling is the Southern aircraft industry. Big mechanical birds are being hatched by it at a rate which soon will run well into thousands monthly. It is appropriate that the South should become a more important contributor to the winged might of the Americas. Late in December of 1903 the Wright brothers had engineered the first successful flight of man in a heavier-than-air-machine.

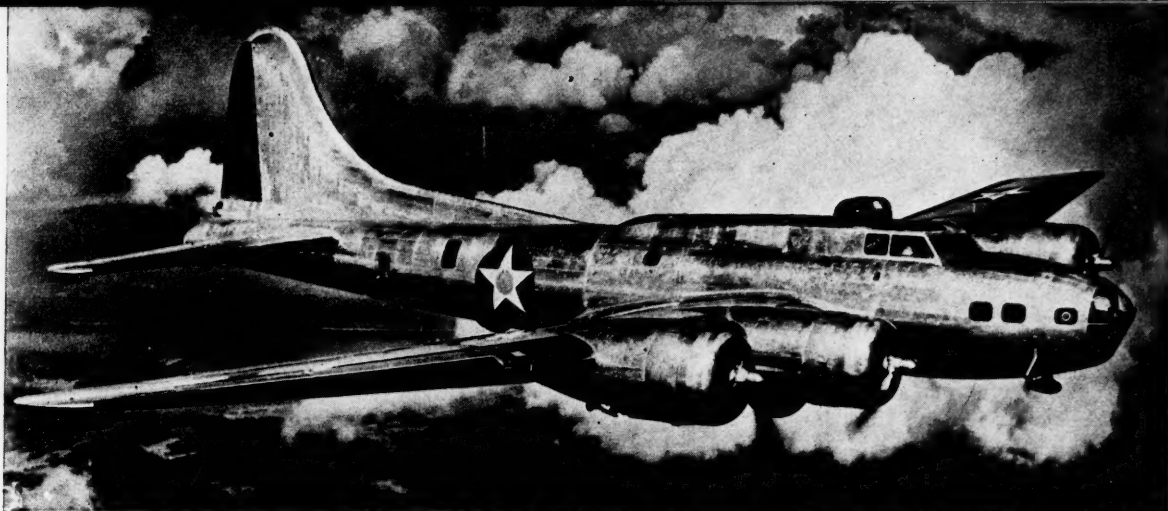
Maryland for many years was hub of airplane production in the South. Glenn L. Martin, a pioneer in the field, over a period of years has developed a mammoth factory near Baltimore from a modest beginning. Two separate plants, one a little over a mile from the other are both building for

the British, for the Americas and for other anti-Axis nations. Altogether, it is anticipated that employment in these plants will shortly be increased to more than 30,000.

The Martin plant has led the list of Southern plane factories. Through the foresight of its executives was undertaken a \$25,000,000 expansion program, which is now coming into full production as many others are at various stages of construction. Fairchild, at Hagerstown, in northern Maryland, has also finished a new \$1,000,000 addition. A second similar expansion is in progress.

Before this is published the first bomber, assembled from parts fabricated by the automobile industry, will have rolled off the production lines at the new \$11,000,000 plant just finished at Kansas City, Mo. This plant is one of a number built by the Army for the purpose at protected points. Several are located in the South—one in Oklahoma, another in Texas.

The plants are Government built; privately managed and operated. The B-25 two-engine bomber being assembled at Kansas City has wing, tails and other parts subassembled at various points. Fisher Body Corp., at Detroit and Memphis, participated.



Official Photo, U. S. Army Air Corps

Thirty-five per cent of the parts are made at Kansas City, where North American Aviation, which recently built its big new plant in Texas, installed its special jigs and tools.

Under the mid-western bomber assembly program, according to the Office of Production Management, work is being speeded on other plants in Oklahoma, Texas, Nebraska and Michigan. Production is scheduled to begin in 1942. Big four-engine Consolidated bombers will be assembled at Tulsa, with Douglas in charge and Ford to furnish the parts. Ford will also make parts for similar planes to be assembled at Fort Worth where operations will be under Consolidated supervision.

Chrysler and Goodyear will supply parts for the Omaha plant. There under Glenn L. Martin will be assembled the Martin bomber otherwise known as the B-26. A duplicate plant, in addition to other Martin activities at Baltimore, has been put into operation not far from the Company's Maryland plant, where experiments are now under way on what is described as the world's biggest flying boat.

After the Martin project, Vultee was for some time the other major aircraft producer in the South. The plant was built first for the Stinson aircraft division of Aviation Manufacturing Corp. It was hailed then as the major aircraft plant below Maryland. Immediately upon acquisition of the new plant in 1940, Vultee started expanding both there and in California. Cost of work at both points was placed at \$9,000,000.

High performance military planes were announced as the product of the enlarged Tennessee plant, which upon completion in May 1940 represented a \$9,000,000 investment. It is a tremendous building, with dimensions of such size as to com-

Above—A Boeing B-17E airplane in flight. Below—A Douglas B-19 about to take off. Opposite page—A flight of North American AT-6 planes.

pare in area with a substantial area of downtown Nashville.

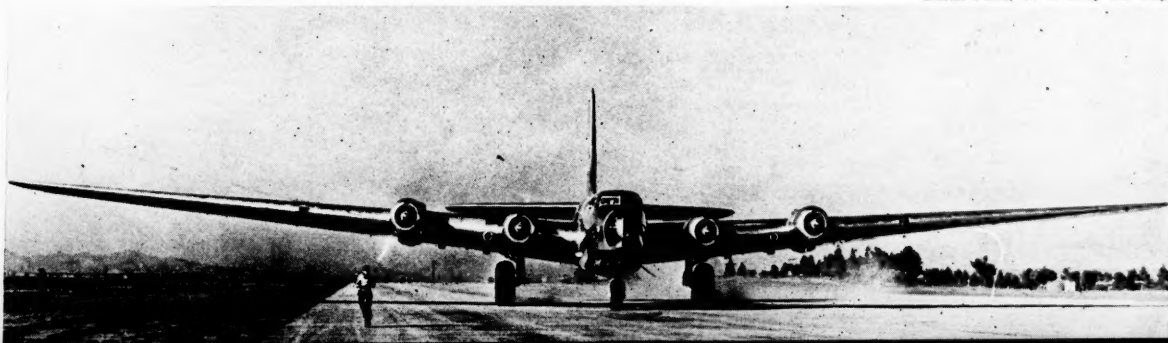
The Vultee plant enjoyed the distinction of being the first major factory of its kind completed within the defense zone designated between the Alleghenies and the Rockies. The Tennessee city was selected, it was pointed out by Harvey C. Tafe, general manager, "after careful surveys of numerous other locations," after which the findings revealed Nashville readily accessible to raw materials and power and far enough inland to make it valuable from both strategic and production considerations.

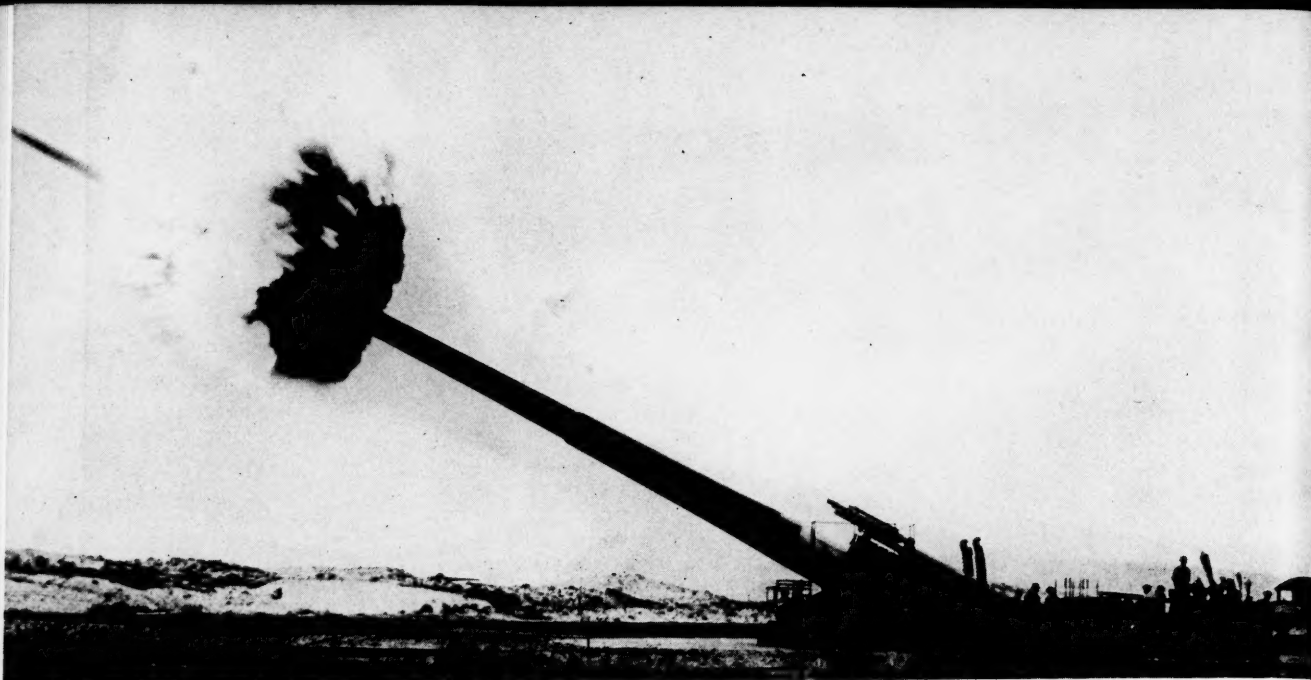
Opening of the North American Aviation plant near Dallas was a big day for Texas. It meant a new industry, the first blackout type plane manufacturing plant, would employ thousands of workers from the community. It also meant the advance of building design by employing steel side-walls of cellular construction, which would allow welding or riveting of new plates for any damaged by bombing raids.

One of the world's largest air conditioning systems was required, as the plant has no windows and air-locked doors, to preclude the faintest beam of light from showing during black-out periods. The fact that 7,000 fluorescent lighting units were installed explains in a way why new facilities were recently built in other sections of the South to

(Continued on page 60)

Official Photo, U. S. Army Air Corps





U. S. Army Signal Corps Photo

The South's War Effort (continued)

ORDNANCE

The South is taking an important part in the Country's production of requirements for the ordnance branch of the service and at the same time is establishing an international reputation for at Radford, Va., and St. Louis, Mo., are located what are believed to be the world's largest smokeless powder and small arms plants respectively.

Early in the defense program the South was singled out for the location of ordnance material plants partly because of the possibility of strategic sites but largely due to the adjacent source of raw materials. When the second allotment of these plants was made in June, the South again occupied the limelight so that today the southern states are almost honeycombed with ordnance plants of one kind or another.

In Alabama at Childersburg is the Alabama Ordnance Works operated by E. I. duPont de Nemours & Co. for the production of smokeless powder. To the latter has now been added the manufacture of TNT, DNT and tetryl. The original estimated cost of \$48,000,000 was later increased to a total of \$72,675,000. Also at Childersburg is a \$9,437,000 bag loading plant operated by the Brecon Loading Co., a subsidiary of Coca-Cola. In addition, the Chemical Warfare Service has a \$40,000,000 plant at Huntsville for the production of various chemicals.

Arkansas has two ordnance plants. One, the Maumelle Ordnance Works at Marche, costing about \$8,000,000, for the production of picric acid and the other, an U. S. Ordnance Depot at Jacksonville, built at a cost of \$33,500,000 for producing detonators.

Kentucky also has two plants, a Navy Ordnance plant operated by Westinghouse Electric and Manufacturing Company at Louisville, and an ammonia plant, costing \$13,600,000, at West Henderson under the direction of the Solvay Process Company.

Two ordnance plants are under construction in Louisiana. One is at Monroe where, at a cost of \$16,750,000, 150 tons of ammonia will be produced daily. The other, a shell assembly plant costing \$29,000,000, is located at Minden. To these might be added the two plants being erected at Baton Rouge by the Standard Oil Company of Louisiana, one of which will be for the production of alcohol and synthetic rubber and the other for butadiene. Together these are estimated to cost more than \$25,000,000.

The only ordnance plants in Maryland are the powder factory of the Navy at Indian Head and the Chemical Warfare Service's arsenal at Edgewood which have undergone expansion at a cost of \$349,000 and \$5,900,000 respectively.

Missouri occupies a prominent position in the manufacture of ordnance materials. At Weldon Springs the originally scheduled \$11,325,000 TNT and DNT plant operated by the Atlas Powder Company already has been expanded at a cost of \$14,131,060 and it is anticipated that further additions will soon triple the original size. Lake City is the location of a \$21,000,000 small arms plant under the direction of Remington Arms Company: cost of equipment and operation will add \$60,975,260 to the construction figure. Louisiana is where a \$16,750,000 ammonia plant is being erected similar to that being built at Monroe, La. Finally, there is the small arms plant at St. Louis operated by the United States Cartridge Company of Baltimore,

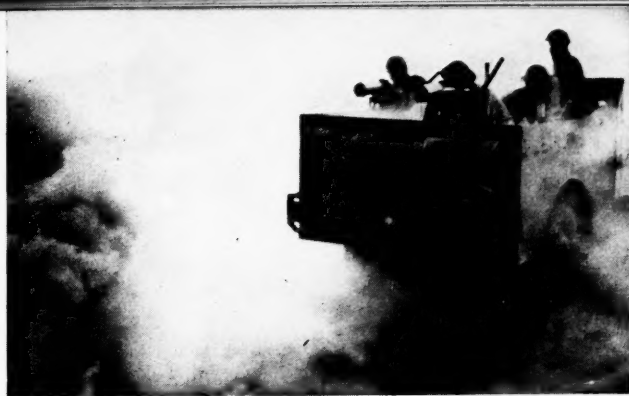
Right—A mobile machine gun crew fights it out in a smoke screen. Below—The Army's new 60-ton T1 heavy tank experiences little difficulty in crushing an armored car. Opposite page—A 16 inch gun demonstrates its firing ability.

Md., a subsidiary of the Western Cartridge Company. This plant, originally designed to cost \$30,419,000, has since been expanded till the total construction exceeds \$89,000,000 in addition to an operating cost of \$92,092,790. These are not the only ordnance producing plants in Missouri but are those built under the defense program for this specific purpose.

Of the ordnance material plants in Tennessee, by far the largest is that being built for the U. S. Ordnance Dept., at Chattanooga for the production of TNT, DNT and tetryl and estimated to cost in excess of \$40,000,000. Another plant for the Ordnance Dept., is being constructed at Copper Hill. This is to manufacture sulfuric acid and probably will be operated by or in conjunction with the Tennessee Copper Company whose plant, producing the same product, adjoins the new \$2,375,000 plant. At Milan is yet another plant where, under the direction of the Procter and Gamble Defense Corp., ammunition loading is already in progress. When completed, this Wolf Creek Ordnance plant will have cost approximately \$15,000,000 besides the operating cost of \$24,720,000. The original cost was to have been \$8,514,000.

Texas being the location of so much of the petroleum-chemical industry which is undergoing great expansion, it is difficult to segregate those plants specifically designated as ordnance. For instance, the \$10,760,000 Baytown Ordnance plant at Baytown operated by the Humble Oil & Refining Company for the production of toluol is identified by its name. But there are several other plants in Texas also producing toluol. Another borderline case is that of Carbide & Carbon Chemical Corporation's chemical plant at Texas City. Certainly there is much ordnance material being produced in the state besides the shell loading plant of the Ordnance Dept., at Texarkana now in course of construction and expected to cost not less than \$45,500,000.

At Radford, Virginia, smokeless powder produc-



U. S. Army Signal Corps Photo

tion has been under way for some time in the \$36,390,000 plant operated by Hercules Powder Company. The same concern has been equally busy at the nearby \$9,376,390 bag loading plant at Pulaski.

At Morgantown, West Virginia, a state already well known for its chemicals, there has been established an ammonia plant under the direction of E. I. duPont de Nemours Co. This was originally to have cost \$15,000,000 but subsequent demand necessitated the plant's enlargement by \$18,500,000.

In connection with the utilization of proximal raw materials by these plants, it is interesting to note that purified cotton linters form the basis for smokeless powder. First the linters are purified by boiling them in dilute caustic soda solution to remove the oil and wax. They are next bleached with chlorine solution, thoroughly washed in water, run through wringers to remove the water and then dried. These cleaned linters are the ones received at Radford.

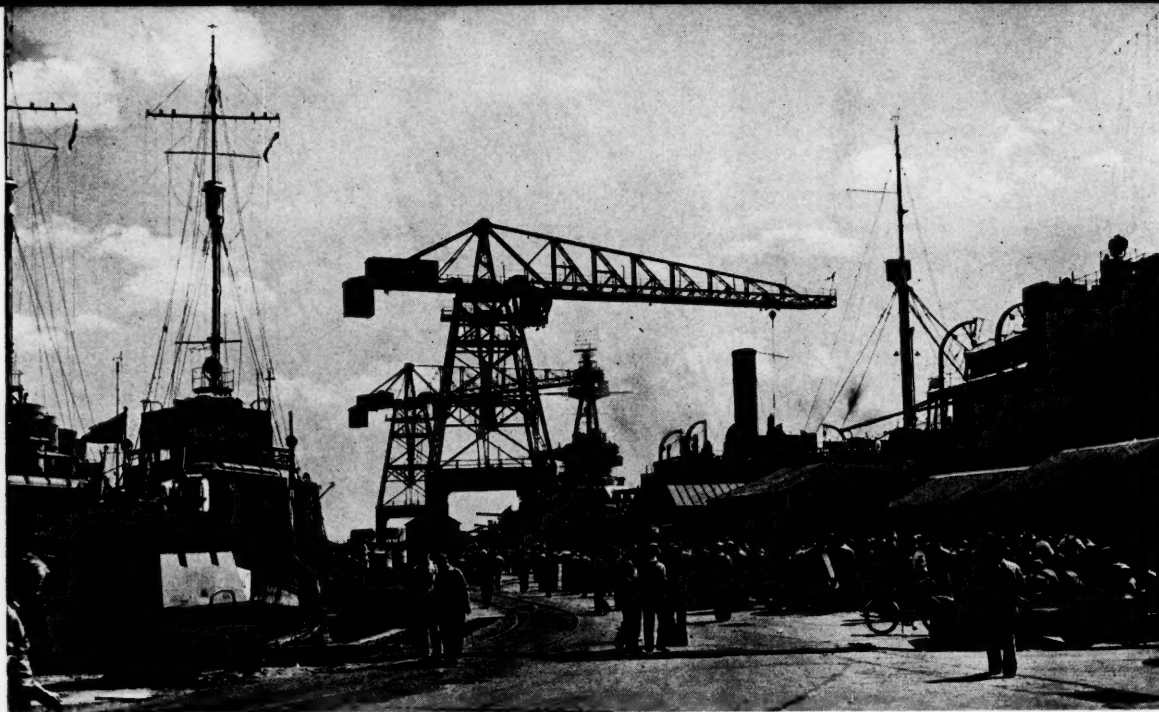
Nitration of the purified cotton is the first step through which the linters go at the plant. This is accomplished by adding mixed sulphuric and nitric acids to the cotton linters. After nitration, the nitrocellulose is pumped to a centrifugal wringer revolving at a speed of 1,000 r. p. m., by means of which as much of the excess acid as possible is extracted. The nitrocellulose is then "drowned" in cold water, then moved to the boiling tubs.

Boiling means that the nitrocellulose is boiled in acidulated water to break down the unwanted chemical compounds which have been formed in the process. After this, it is transferred to beating or cutting machines where it is ground under water. This finely ground or pulped nitrocellulose is boiled

(Continued on page 60)

U. S. Army Signal Corps Photo





OEM Defense Photo by Palmer

The South's War Effort (continued)

SHIPS

Ships—good ships and famous ships—have been a tradition of yards below the Mason and Dixon line. In the last century Baltimore was an important center of Southern shipbuilding. Now, on the same shores where a hundred or more years ago were built the renowned clipper ships, is being carried on an important part of the largest mass production of ships in history.

This time, however, the vessels do not have the Southern pine and cedar of the sailing vessel. They are steel ships—Liberty ships—and they slide rapidly from ways where not many months before other steel ships were being torn apart. Organization of the 16-shipways of the Bethlehem-Fairfield shipbuilding plant is a remarkable achievement of American initiative and ingenuity. Maryland Dry Dock Co. is now pushing a \$5,000,000 expansion for ship repairs there.

Nor does that energy and skill stop in the upper Chesapeake Bay. Down near the mouth at Hampton Roads, Va., is the Newport News Shipbuilding and Dry Dock Co., the founder of which posted the motto, "We shall build good ships here—at a profit if we can at a loss if we must;—but always good ships."

The Newport News plant built the *America*, largest merchant vessel ever constructed in this country. That great queen of the merchant marine is now a unit of the Nation's military fleet, its huge hull and fine appointments having long since been converted for troop transportation. A great new \$70,000,000 battleship has just recently been

christened. Other naval vessels are at various stages of construction.

Ocean waves and gulf currents roll in on many other shipbuilding operations all along the South's 3,000 mile coastline. North Carolina is the site of the North Carolina Shipbuilding Co. This concern last month launched its first "ugly duckling" or Liberty ship. Savannah Shipbuilding Co., recently taken over by the Maritime Commission, on the river that flows to the sea at the Georgia-Florida boundary, not long before had laid its first keel. At this plant it is planned shortly to double the number of employees.

By the middle of last month there were nineteen "Liberty" ships built or building at the Fairfield plant. One of the nine yards where such operations are being pushed down along the North Carolina coast is at Wilmington, where the North Carolina Shipbuilding Co. launched its first of this type vessel. Near Mobile, the Alabama Dry Dock & Shipbuilding Co., ranked sixth in progress among the various yards. The Delta Shipbuilding Co., New Orleans, and the Houston Shipbuilding Corp., Houston, were also on the list.

The vessels are part of the 312 program of the United States Maritime Commission, which in addition has 313 vessels of other descriptions under construction at various points throughout the country. These latter have substantially augmented the fleet of the American Merchant Marine, which formerly was characterized as "a cross-eyed stepchild."

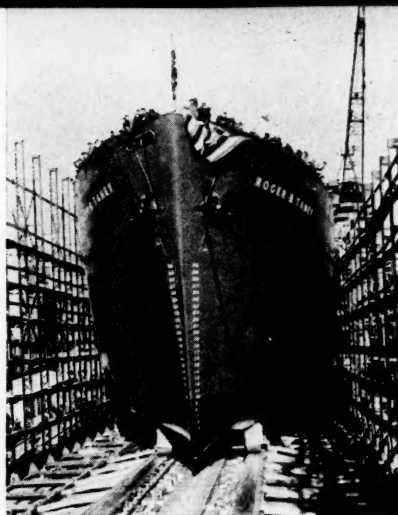
A brief of the history of the present Maritime Commission will show why this name applied until recent years. The merchant marine law, after en-

South's Ship Ways Exceed 125

by

H. GERRISH SMITH, Pres.,
National Council of American Shipbuilders

A RECENT survey of the Shipbuilding Industry of this nation, conducted by the National Council of American Shipbuilders, an organization representing over 80 per cent of the shipbuilding capacity of this country, indicates that the shipbuilders of our southern Atlantic and Gulf Coasts are bearing their full share of the shipbuilding effort of the nation. The herculean task represented by the building programs of the Maritime Commission and the Navy Department, the lend-lease ships for the British, and the repair and conversion work of the Navy and the Maritime Commission has been willingly assumed by the Shipbuilding and Shiprepairing Industry. The government agencies responsible for this work have very



wisely spread the work along all our Coast and on the Great Lakes. This has tapped new sources of labor supply, prevented congestion, and has located privately operated shipbuilding facilities where they will be of strategic use to the fleet in the event of major naval operations.

On the East Coast of the United States south of Baltimore there are 50 shipbuilding ways of 400 or more feet in length, and 4 ways

between 300 feet and 399 feet in length. On the Gulf Coast there are 61 building ways of 400 or more feet in length, and 11 ways of 300 to 399 feet in length. Therefore, south of Baltimore on the Atlantic and Gulf Coasts there are 126 shipbuilding ways capable of accommodating vessels of 300 or more feet in length. All of these ways are actively engaged in building or repairing and converting ocean-going vessels. These figures do not include the numerous smaller facilities busily engaged in the construction of small craft for commercial and naval purposes.

As of November 1, 1941, the Southern yards had 312 cargo vessels and tankers under construction for public and private account. These yards have finished and delivered 25 ocean-going commercial vessels from January 1st to October 1st. These figures do not include the naval combatants and auxiliary tonnage under construction in the Southern navy yards and in the private building yards.

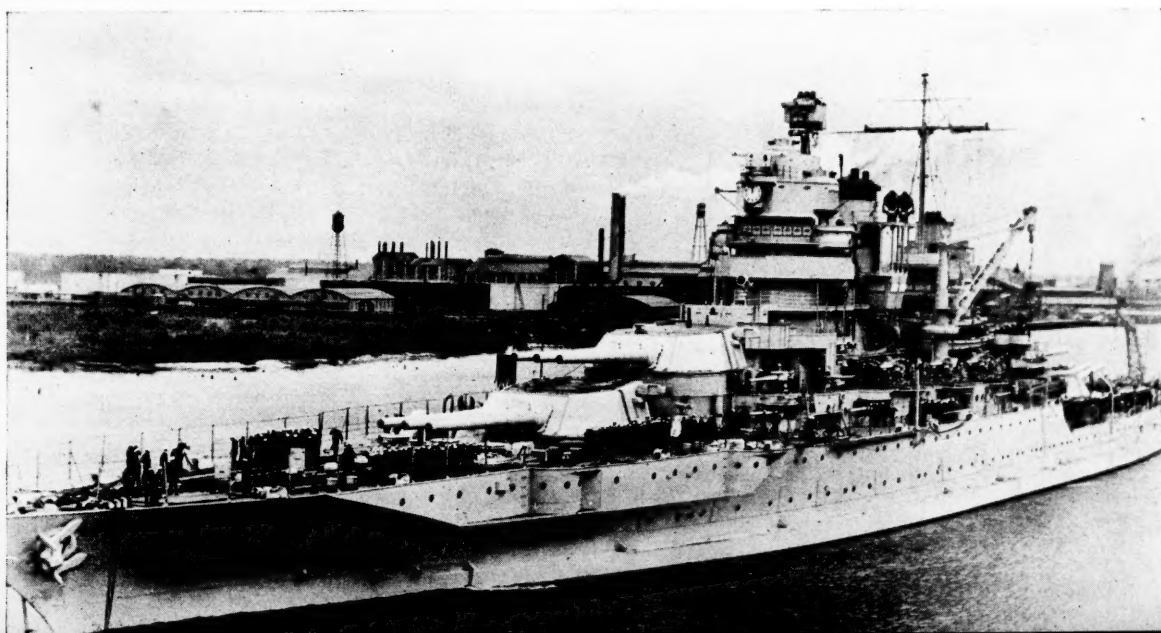
countering many obstacles finally became law in April of 1937. Seven months later a survey described to Congress what "a desperately sick industry" was American shipping. The fleet was nearing its useful end and the conclusion was reached that the Government would be forced to replace vessels which had been part of the first World War boom.

The first construction differential subsidiary contract was made in the first year of the Commission's operation. The 33,000-ton *America* was

built under this agreement. Lack of applications for other subsidies led the Commission to embark on construction of 12 vessels of C-2 design. Negotiations were then consummated with the Standard Oil Company by which the Government would pay 28 per cent of the total cost of 12 high-speed tankers suitable for naval auxiliaries.

A long range program for building 500 ships over a 10-year period was developed. Designs of the C-2, C-3 and C-1 dry cargo ships and the twin-screw

(Continued on page 62)





STEEL

Much of the steel industry's five billion dollar investment is below the Mason and Dixon line. A large part of the current half billion dollar expenditure for expansion is also being made for new facilities in the South, near Baltimore, and deep in the South at Birmingham, in Alabama.

The great names in the steel industry—United States Steel Corp., Bethlehem Steel Co., and Republic Steel Corp.—have for many years found it advantageous to operate in one or the other of these communities. West Virginia also shares in the production, with Weirton Steel Co., affiliate of National Steel Corp., located at Weirton.

New Steel Making Center Located in Texas

A new center of steel manufacture—the first important one in the Southwest—has sprung up at Houston, near the Gulf coast of Texas. Sheffield Steel Corp., Kansas City, Mo., satellite of the American Rolling Mill Co., is now rushing a \$17,000,000 plant toward completion. A similarly sized plant may be added to it. Not far away at Port Arthur, Texas Steel Manufacturing Co. is about ready to start making shell cases in a new \$2,000,000 factory.

In the words of President Roosevelt, "the output of the steel mills serves as the backbone of the weapons, the tanks, the airplanes and the ships

The South's War Effort (continued)

on which the fate of free government in this world rests." That is the responsibility with which the steel industry is charged and it is toward this end that the efforts of the industry are bent in the current conflict with Germany and its Axis puppets.

New Bethlehem facilities are being financed to the tune of \$55,777,000 by the Defense Plant Corporation. This announcement was made about the middle of October. It pointed out that pig iron plants would be located at the South's big tidewater center—Sparrows Point—as well as in Pennsylvania and New York. Coke production is being raised by 1,194,000 tons yearly and steel ingots, by 180,000 tons. A 780,000 ton plate mill is being built at Sparrows Point.

Coke, it must be remembered is one of the principal ingredients in separating the metallic iron from the ore. Almost a ton is needed, together with practically two tons of ore and a little less than half a ton of limestone to produce one ton of the pig metal. The porous fuel is made from special grades of bituminous coal found in West Virginia, Kentucky, western Pennsylvania and Ohio. The "captive mines" which recently have made the headlines, are sources of this important factor in ore reduction.

Alabama Pig Iron Production to be Increased About 350,000 Tons

Birmingham is sharing in the \$58,312,000 expansion of Republic Steel Corp. Authorities there estimate that 350,000 tons of pig iron will be added to the Alabama production as the result of the program, which also includes new facilities at Cleveland, Youngstown and Warren, Ohio, and altogether will raise Republic pig iron production by 1,572,000 tons.

These expansions have been found necessary "to meet the deficiency of scrap metal." The quotation is from Jesse H. Jones, federal loan administrator. He did not mention, however, that the short-sighted policy in allowing profit-mad scrap dealers to export great quantities of scrap to Axis stock piles fostered the smolder of Asiatic hate into the attacks recently made on our Pacific possessions.

Steel expansion means more than construction of new blast furnaces, new hearths to refine the pig iron into steel, and finishing plants to roll out the plate or other shapes required. It means that more ore must be mined, perhaps new mines opened and developed. Railroad cars and locomotives must be available to transport the ore to the docks or plants.

MANUFACTURERS RECORD FOR

Ore boats must be added and docks built to load and unload the ore. More coal and limestone mines must be placed in operation and more coke ovens built.

"Expansion of the nation's steel making facilities, particularly in the field most vital for war production, will be pushed forward with a new speed," said a mid-December announcement by W. L. Batt, director of materials. This followed reports that the new Houston plant of Sheffield Steel would be expanded by erection of both blast furnaces and additional steel manufacturing equipment.

High Priorities For Steel Expansion

High preference ratings for the steel expansion throughout the country are to be granted. One of the steps being considered is to equip existing blast furnaces with air conditioning units. These could be installed within four or five months. The work would not delay plant operations and it is estimated, pig iron output could be raised five to eight per cent.

Steel expansion projects approved to date will have an output totaling more than 7,000 ingot tons. These, it was pointed out by Mr. Batt, are to meet the specific needs of war production, in such fields as alloy bars, tool steel bars, cold finished bars, armor plate, special steel. Increase in the Great Lakes or shipping capacity will be effected by construction of 16 new ore boats.

Tennessee Coal, Iron & Railroad Co. Increasing Ingot and Finishing Capacity by 20 Percent

Tennessee Coal, Iron and Railroad Co. is the United States Steel of the South. It was at Birmingham that a broad program was placed under way last year to expand steel making and finishing facilities. Upon completion the new buildings with their herculean machines and furnaces will mean a 20 per cent increase in ingot capacity, a corresponding rise in finishing capacity. The changes necessitate enlarged operations at the ore mines, the coal shafts and quarry holes and additional means of transportation as well as power output.

Primarily, the most important features of the program were: An additional battery of coke ovens and an additional blast furnace at the Fairfield steel works; improvements to existing open hearth furnaces; development of ore and coal mining facilities to meet the enlarged operations, additions and improvement to the Fairfield plate mill, including a new 140-inch, four-high plate mill; additional wire drawings, galvanizing and finishing capacity at Fairfield, and new processing and finishing facilities for the sheet mill there.

Republic Steel Corp. is another participant in the South's place as a steel center. It is estimated

that almost one-half of the recently announced \$58,312,000 program would be undertaken in Alabama. The contract together with one previously made with Carnegie-Illinois, will add about 2,500,000 tons of new pig iron capacity to the country's total. Plants will be located at Cleveland, Youngstown, Warren, Ohio, and Birmingham, in Alabama. The four new blast furnaces, with the complementary coke ovens and other equipment, will produce 1,572,000 tons of the pig iron. The Birmingham expansion is now about ready to begin operations. From four to eight months more will be required to start the others.

Weirton, near the West Virginia-Ohio line, and Ashland, in Kentucky, are the other important iron and steel points of the South. Operations at Ashland are now being expanded by American Rolling Mill Co. under a Defense Plant Corporation contract. What is called "synthetic scrap" will be produced in a new \$842,000 Bessemer converter. The output would be at the rate of 600,000 tons annually. Another agreement involved expenditure of \$584,000 for new steel ingot capacity. Most recent project at Weirton is a plant to carbonize coke, a by product factory, at an estimated cost of \$5,000,000.

The only manufacturing establishment devoted exclusively to production of stainless steel is located at Baltimore. Now engaged mostly on Navy work, the concern—Rustless Iron and Steel Corp. was recently reported embarking on another program of expansion after completing two others, the most recent of which was celebrated late in 1940 and involved an addition costing \$2,500,000.



The South's War Effort (continued)

POWER

Power companies throughout the sixteen states of the South have always been on the alert to erect new plants, extend transmission lines, build additional distribution facilities to meet expanding requirements.

These companies have participated heavily in the vast increase in power production now forging ahead throughout the country. Under this program more orders have been placed for power machinery than at any other time in history. Steam turbines contracted for in 1941 totaled 4,500,000 kilowatts, or a million and a half more than in the previous year.

Power expansion requires time. It cannot be carried out as quickly as some in other fields of enterprise. Sometimes, several years are needed to construct a large plant, particularly where a large dam is to impound the water for operation. The most recent private hydro plant placed in production, however, was built in three months over a year at Glenville, in mountainous western North Carolina.

It is part of a program of private interests to augment the power supply in the Southeast, where power rationing has been threatening because of low water conditions and where it is still in prospect, according to the Office of Production Management.

Studies show that the power load in the latter part of 1943 will approximate over one billion kilowatts per month; that the available power, including plants under construction by both the Tennessee Valley Authority and the Aluminum Company of America, which is a principal consumer, will average about 900 million kilowatt-hours monthly. This means an impending shortage of over 100 million kilowatt-hours in the aluminum area that must be made up.

More Power For Aluminum and Shipbuilding

In addition to the newly finished North Carolina plant and another under construction in the same state, Aluminum Company through its subsidiary, the Aluminum Ore Co. at Mobile is pushing work on a \$2,000,000 project at that Alabama seaport. The bauxite ore is reduced to the alumina powder there.

Another Alabama power expansion was carried out by Alabama Power Co. A new 40,000-kilowatt steam plant was placed in operation before it was completed to supply power for ship construction at Chickasaw, near Mobile, and a second unit of the same size was ordered. Together they are costing \$7,000,000. The company is also building a 60,000-

kilowatt unit at its Gorgas plant in Walker County.

Arkansas, where the Government is starting work on a huge aluminum plant, has a \$3,000,000 new power plant in the sour gas fields of the southwestern section of the State. Work is progressing on Norfolk dam, where Congress has recommended expenditure of an additional \$5,000,000 and the first step was taken about a month ago to design the turbines on the \$15,000,000 project.

The two Florida expansions were those of Florida Power & Light Co., Miami, and Gulf Power Co., Pensacola. The former, for quadrupling capacity of its Miami Beach generating plant by adding a 30,000-kilowatt generator at a cost of \$2,500,000. The \$2,500,000, 20-kilowatt plant of the Gulf Company, is to be fueled by natural gas.

Capacity of the \$7,000,000 power plant at Holton, Macon, Ga., where the big Reynolds fuse plant is located, is being doubled by Georgia Power Co. These facilities originally called for production of 60,000 kilowatts. Additional turbines and generators will raise this to 120,000 kilowatts.

Large Expansion Planned In Kentucky

Operations will be started in about six weeks at the new \$5,600,000 steam electric generating plant of Louisville Gas & Electric Co. Two 25,000-kilowatt generators will be augmented by other units to bring the capacity to 300,000 kilowatts. A \$4,000,000 plant proposed at Tyrone, Ky., where its construction has been proposed for many months, in December received approval of the Kentucky Public Service Commission. It will be so designed that its initial 25,000-kilowatt output can be doubled, if required.

Baltimore, where big aircraft, steel and ship plant operations are major users of electric power, is experiencing a large power plant expansion program. Work is now progressing on the \$6,500,000 new Riverside station near the municipal airport. A second unit of similar size is now under way there. The company has completed additions to its Westport plant, where more than \$8,000,000 has been expended.

About \$3,500,000 for power plant improvements was included in the program of the Kansas City Power & Light Co., of Kansas City, Mo., with \$2,500,000 scheduled for installation of a 35,000-kilowatt generator in its Grand Avenue plant. Additional generating facilities were undertaken by Union Electric Co., of St. Louis, under its expansion and refinancing program.

North Carolina companies, other than the Aluminum Company, who are engaged in enlarging their output, are Carolina Power & Light Co., and Duke Power Co., of Charlotte. The first is proceeding on a second \$3,000,000 unit to add 40,000 kilo-

Watts Bar Dam now stretches entirely across the Tennessee River in east Tennessee and construction work is almost completed. Closure of the dam and first storage of water are scheduled for this month. The dam is 2,965 feet long and rises 97 feet above the bed of the stream. Its reservoir area of approximately 41,600 acres reaches 72 miles upstream to the site where Fort Loudoun Dam is under construction. Initial installation of generating equipment will provide a capacity of 90,000 kilowatts.

watts to its Cape Fear Station. A \$3,000,000 addition at the Duke Company's Spencer steam station will raise capacity of the plant by 40,000 kilowatts. The Glenville plant added 30,000 horsepower to North Carolina's power output; Nantahala, now under construction, 60,000 horsepower.

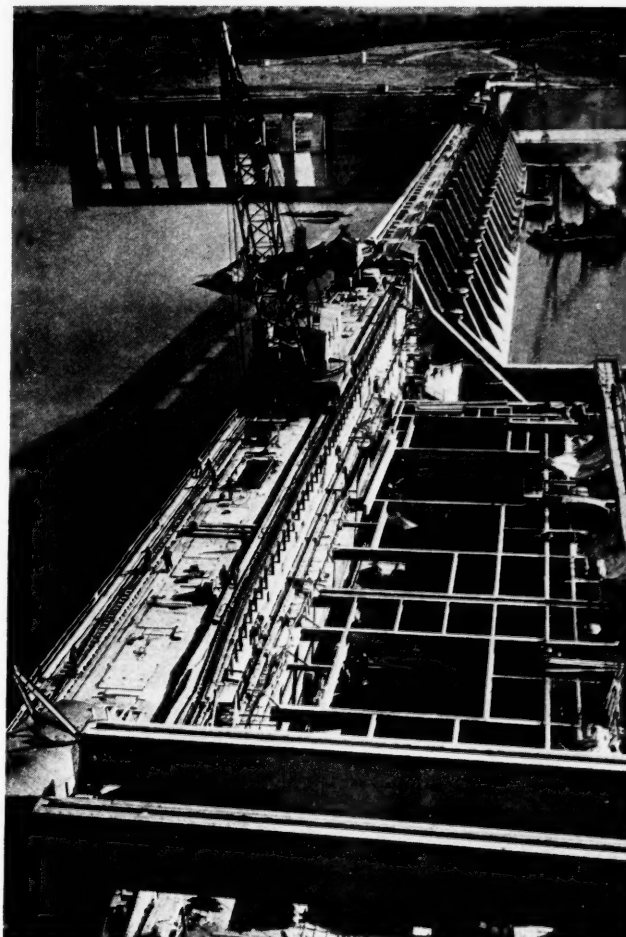
Oklahoma and South Carolina participated in the electrical advance of the South during the past year. Both, through State agencies, placed huge hydroelectric projects in operation. The Grand River Authority delivered the first electricity from its \$22,500,000 plant at Pensacola, Okla. Santee-Cooper, a \$47,025,000 enterprise of the South Carolina Public Service Authority, started its generators and soon will be pouring power from big 40,000-horsepower generators into commercial channels.

Tennessee Valley Authority Plans Large Expansion

Tennessee is the land of the Tennessee Valley Authority. The long arms of this agency, which at first was much opposed but now is more generally accepted, reach from Knoxville into northern Alabama, western North Carolina, through Tennessee and into Kentucky. Its latest conquest was negotiation of a contract to operate the five-dam system of the Aluminum Company of America on the Little Tennessee River. The much disputed Fontana site was also taken over and a move is now afoot to get action on the proposed Douglas dam as a defense project on the French Broad River in Tennessee.

Construction is now under way on the Kentucky and Fort Loudoun dams, which are part of what the Authority calls its normal program. There are also three emergency programs. The first two are under way. The third has not received Congressional approval as yet. Under the first program is Cherokee dam authorized with the Watts Bar steam plant as an emergency measure in July, 1940. Work is reported ahead of schedule. The turbo-generator for the Watts Bar units, which apparently is a recognition of the weakness of a pure hydro-electric system is being tested at the General Electric plant in New York. Other units at Wheeler, Wilson and Pickwick Landing are in various stages.

The second emergency program is now in the early process of construction. The four new dams are Appalachia, Ocoee No. 3, so named because it



supplements dams by the same name but numbered 1 and 2, Chatugee and Nottely dams. Appalachia and Chatugee are being located in North Carolina. Ocoee No. 3 is a Tennessee project and the site of Nottely is in Georgia. Strength of the Appalachia and Ocoee generators will total 100,000 kilowatts. The others are for storage only.

A \$25,000,000 appropriation has been approved by the House of Representatives to start another T. V. A. defense power program. Under it work would be started on Fontana Dam in North Carolina, another generator would be installed at Watts Bar steam plant and ten others would be added at various T. V. A. dams already finished and in operation.

Virginia's latest electrical expansion is at Alexandria. There the Virginia Public Service Co. is planning to spend approximately three-quarters of a million dollars for increasing generating capacity from 30,000 to 45,000 kilowatts. Additions in West Virginia recently include a \$3,900,000 expansion at Rivesville for Monongahela West Penn Public Service Co. and a \$4,000,000 enlargement of the Cabin Creek station of Appalachian Electric Power Co.

COTTON CONSUMPTION SETS NEW RECORD

by

Dr. C. T. Murchison
President,
The Cotton-Textile Institute, Inc.

**Over 10,000,000
Bales Used to
Produce Nearly
12,000,000,000
Yards of Cloth**

VIGOROUS prosecution of the war against the Axis Powers probably means that the heavy load of military contracts already borne by the cotton textile industry will be doubled or trebled.

About 30 per cent of the present record breaking production of mills is currently going into war purposes. Mills over the last 12 months consumed more than 10,000,000 bales of cotton and produced almost twelve billions yards of cloth. In order to achieve this output, most mills were compelled to resort to triple shift operations. In some centers, however, mills have been unable to use their full productive capacity since skilled labor is scarce and the training of learners is impeded by legal restrictions.

In order to equip a soldier for modern mechanized warfare, about 250 pounds of cotton are needed. This includes not only clothing, bedding and housing but also takes in the large amounts of cotton used in the machinery of war. In other words, the outfitting of an army of 5,000,000 men, for example, would require the processing of 1,250,000,000 pounds or 2½ million bales of cotton. Naval requirements are also large and there is the strong possibility

that our mills may be called upon to meet the cotton requirements of the fighting forces of the ABCD powers in the Far East.

In normal times, about 40 per cent of the output of cotton mills goes into apparel for civilian wear, about 40 percent into industrial uses and 20 per cent into such housekeeping necessities as sheets, pillowcases, towels, draperies and furniture upholstery. Cotton textiles are the basic need of many industries. Mills at present are turning out large quantities of goods for use in the manufacture of such products as tires, bags, belting, conveyor systems, abrasives, filtering devices, fire hosing, tarpaulin truck covers, artificial leather and hundreds of other cloths and products which are intended for use in industry. In a mechanized world the needs and uses for cotton goods industrially has been and is constantly increasing.

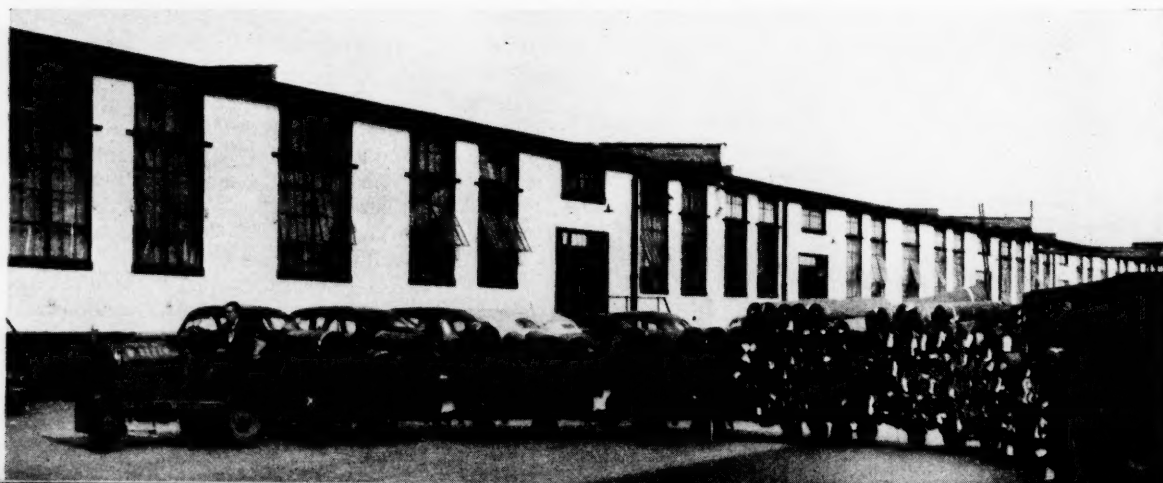
As time goes on it may become more and more difficult for

Bolts of cloth arriving at the Philadelphia Quartermaster's Depot to be made into uniforms. To outfit an army of 5,000,000 men would require 1,250,000,000 pounds of cotton or 2½ million bales. To equip each soldier about 250 pounds of cotton are needed.

civilians to obtain the assortments of cotton products to which they have become accustomed. The situation has reached the point where priorities are highly important. Imports of textile fibers such as silk and flax have been reduced materially and there is a possibility that shipments of wool from South Africa and Australia may be affected adversely by the spread of the conflict. In many cases, cotton products are being called to make up the deficiency. For instance, there is a brisk demand for combed yarn for women's hosiery to replace silk and mills find it difficult to fill this need for the limited number of spindles capable of spinning the finer sizes of yarn are already choked with government orders. There is also the strong possibility that the industry may be called upon to make up the loss in burlap imports, not to mention the situation caused by the shortage of paper for bags formerly an important market for this industry.

Meanwhile, the industry is faced with the task of supplying many articles needed for civilian defense. Most important of these are blackout cloths and sandbags.

U. S. Army Signal Corps Photo



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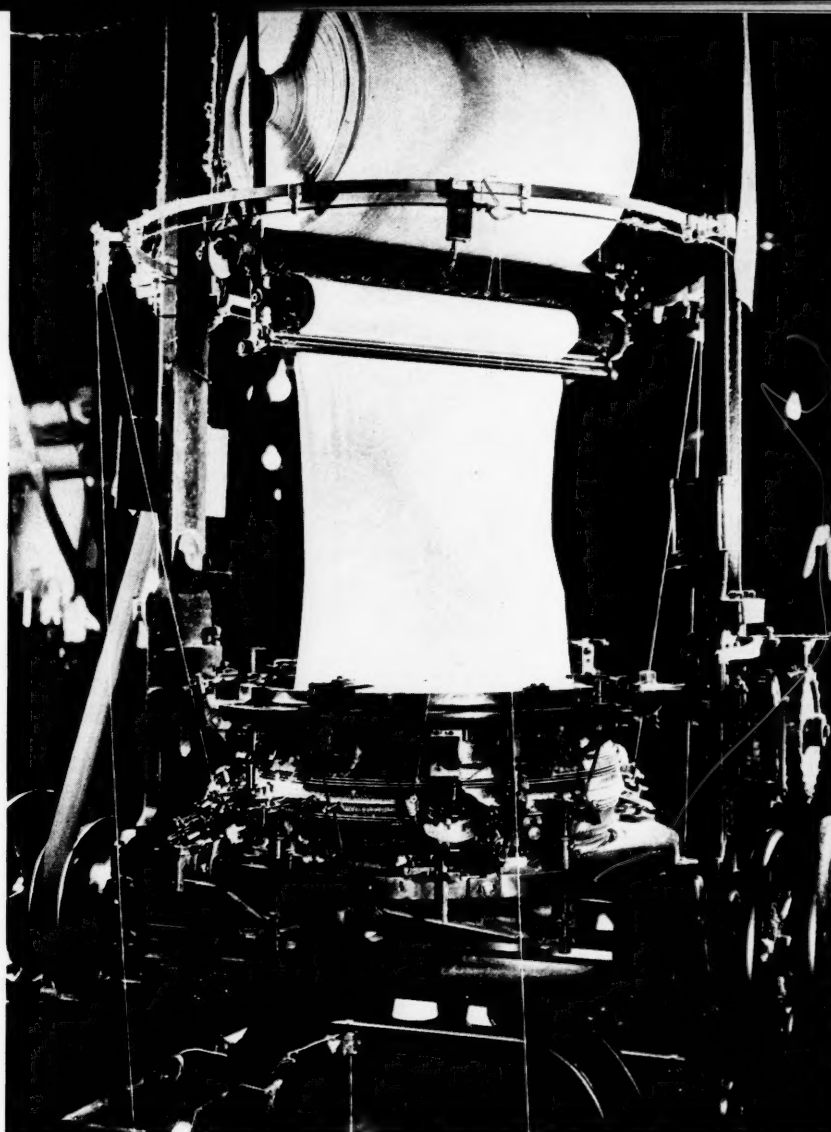
So heavy has the demand for blackout cloth become that the government has requested civilians to refrain from starting a buying stampede since very heavy purchasing at this time may interfere with the production of textiles for military needs. With burlap shipments uncertain, demand for sandbags has centered on cotton materials.

Indicative of the way in which mills have stepped up production are the percentage figures on spindle activity printed below. These statistics represent percentage of capacity which is based on the two-shift eighty-hour week.

SPINDLE ACTIVITY—PERCENT OF DOUBLE SHIFT CAPACITY

	1941	1940	1939	1938
Jan. . .	112.1%	102.6%	85.7%	63.5%
Feb. . .	114.0	99.7	87.8	66.6
Mar. . .	116.7	94.6	86.7	66.6
Apr. . .	119.6	92.1	84.7	59.5
May . .	121.8	89.4	81.9	59.4
June . .	121.5	87.9	82.5	60.8
July . .	123.0	86.8	81.9	70.2
Aug. . .	125.3	90.5	85.1	76.2
Sept. .	123.7	96.8	92.5	76.0
Oct. . .	125.8	103.9	97.9	81.9
Nov. . .	129.4	105.9	100.7	82.3
Dec. . .	...	105.0	100.7	82.3

The achievement of the industry in meeting the combined military, industrial and civilian demand for cotton goods, however, cannot be appreciated properly unless comparison is made with previous years. During World War I mills consumed on an average of 6,500,000 bales annually which was considered at that time a striking performance. Mills then were in possession of about ten million more spindles than they now own.



One of the intricate machines which is making cloth under defense contract in a Tennessee Valley textile mill.

The modern spindle, however, thanks to improved design and multiple shift operation can process considerably more cotton

than the spindle of twenty years ago.

Comparative figures on the productivity of cotton spindles is shown at left.

When reliable estimates are available as to the kinds and amounts of cotton goods that will be required for military, blackout and sandbag purposes, steps will be taken to make certain that the necessary amounts are produced. Civilian defense requirements doubtless will be placed ahead of most ordinary civilian uses. However, until cotton textile mills know the quantities of goods required to conduct the war and for home defense they will be unable to plan far ahead for their regular customers.

Cotton Spindle Productivity

Year	Spindle Hours (Millions)	Average Active Spindles (Millions)	Hours per Average Active Spindle	Raw Cotton Processed (Millions of pounds)	Cotton Processed per Spindle per hour	Cotton Processed per Average Active Spindle
1922	92,814	33.03	2,810	2,910	.0314 lbs.	88.1 lbs.
1923	99,508	34.68	2,869	3,121	.0314	90.0
1924	80,275	31.08	2,583	2,637	.0329	84.8
1925	94,600	32.64	2,898	3,075	.0325	94.2
1926	97,029	32.35	2,999	3,215	.0331	99.4
1927	104,450	32.55	3,209	3,588	.0343	110.2
1928	92,729	29.96	3,095	3,184	.0343	106.3
1929	99,900	30.41	3,285	3,423	.0343	112.6
1930	76,703	27.27	2,813	2,611	.0340	95.7
1931	77,793	25.67	3,030	2,657	.0341	103.5
1932	70,218	23.25	3,020	2,463	.0351	105.9
1933	86,580	24.87	3,481	3,053	.0353	122.8
1934	75,711	25.12	3,014	2,655	.0351	105.7
1935	76,017	23.42	3,246	2,755	.0362	117.6
1936	91,773	23.37	3,926	3,470	.0378	148.5
1937	95,591	24.08	3,970	3,657	.0383	151.9
1938	76,252	22.04	3,460	2,910	.0382	132.0
1939	92,563	22.32	4,148	3,645	.0394	163.3
1940	98,184	22.40	4,381	3,964	.040	177.0
1941 (Preliminary)	122,000	22.9	5,300	5,226	.043	229.0

\$23,000,000 EXPANSION OF TEXAS' NEW STEEL PLANT

A BLAST furnace and other facilities comprising an entire steel unit are to be added to Houston's new steel plant at a cost exceeding \$23,000,000. This will bring to \$40,370,855 the total expenditure on Sheffield Steel Corporation's undertaking, the initial part of which has not yet been completed, and will raise to about 2,300 the number of wage earners expected to be employed.

Less than eight months ago, when George M. Verity, Chairman of the Board of Directors of the Sheffield Corporation's parent company, the American Rolling Mill Company, thrust a "silver spade" into Texas earth in a six hundred acre woodland site on the Ship Channel near Houston, a fond hope of both the steel company and the Southwest was realized.

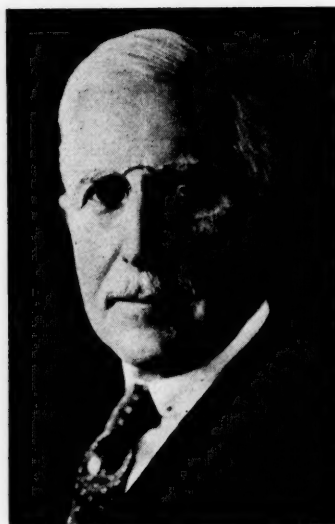
Steel had come to Texas. The first large integrated steel plant in that region was under way.

When it goes into operation, this Spring, another strong link in the industrial ring of defense shall have been forged.

Originally, the plant was to cost \$17,000,000 and to consist of three open hearth furnaces, a structural and tie plate mill, a merchant bar mill, reinforcing and rod mills, a wire plant, and hot rolled sheet and plate mills. However, because of the strategic location of the plant as a defense producer, the government asked that the original plans be expanded. As a result, the Houston plant will have a blast furnace, five open hearth furnaces, a 132" plate mill and an 84" plate mill and finishing facilities, coke ovens, billet and structural mill, rod mill and merchant bar mill.

There will also be a tie plate department and a fabricating shop for making bar joists and bending reinforcing steel.

The expanded plans call for the expenditure of \$40,370,855, with the construction cost being financed by the Defense Plant



George M. Verity, Chairman of the Board of Directors of the American Rolling Mill Company, parent company of the Sheffield Steel Corporation building the new Texas steel plant.

Corporation and the Reconstruction Finance Corporation.

The Sheffield Steel Corporation of Texas, wholly-owned Armco subsidiary, is building and will operate the plant.

While making a major contribution to the nation's war effort, the Sheffield Houston plant is not a war baby but a permanent addition to the economic life of the Southwest. It has a complete and compact economic cycle. Most of the raw materials used will be from that area and processed into useful goods which will be returned to the area. Approximately eight cents out of every dollar spent will remain in the territory. In addition, the plant will eliminate the long hauls of scrap to eastern and northern steel plants and the back-haul of finished products.

Among the products which will be made from the completed plant's 274,000 tons of pig iron and 216,000 tons of steel plate annual production are light and

heavy ship plates, merchant's bars and shapes, rods, reinforcing steel, tie plates, structural shapes, wire fencing, including barbed wire, nails and spikes of all types.

These varied products of the Houston plant will be distributed to many markets—agriculture, manufacturing, oil industry, railroads, shipbuilding, building industry, highway construction, mining, etc.

The Sheffield organization as well as the parent company has an interesting background of achievement in the steel industry of the South as well as the entire country. The Sheffield Steel Corporation was founded at Kansas City, Mo., in 1888 and first made a special track bolt for the railroad market. This bolt was manufactured from iron and steel shipped in from eastern steel producing centers.

In 1918 the Sheffield organization made an epochal move, not only revolutionizing certain phases of steel production but making it possible to manufacture steel in sections of the country far removed from the sources of iron ore.

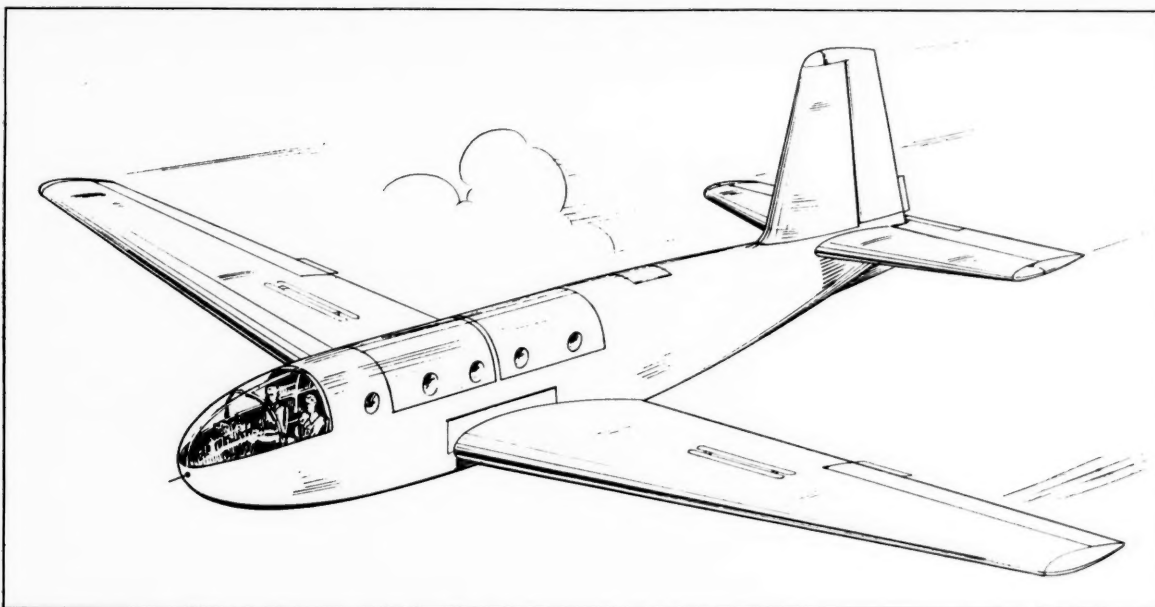
In that year, against the counsel of experienced Eastern steel men, Sheffield put into operation its first open hearth furnaces using scrap alone as raw material.

So successful has Sheffield's use of its own development been that the Kansas City plant has grown from a small shop where only 30 worked to a huge modern steel works employing 2,800 men with an annual payroll of more than \$4,500,000.

The Houston plant is well situated geographically for it is at the back door of three of the largest consumers of its highly specialized iron and steel products.

Much of the Gulf shipbuilding industry is within easy reach of Houston. These yards will use the greater portion of the Texas plant's output of both bolts and

(Continued on page 58)



TROOP CARRYING GLIDERS

THE Navy Department recently announced the award of contracts for the manufacture of a number of experimental gliders. Included is a contract for 12-place troop carrying gliders to Allied Aviation Corporation of Baltimore.

The general lines of this glider, whose overall dimensions approximate those of the Douglas DC-3, were originally laid out by the engineering offices of the Naval Aircraft Factory in Philadelphia, under the direction of Commander R. S. Barnaby, who is also head of the Soaring Society of America. All subsequent engineering details are being worked out by Allied Aviation Corporation, including detailed wind tunnel testing of the final design in the company's seven-foot wind tunnel. As soon as the exact design details have been frozen, the molds for the various parts of the gliders will be commenced.

In the construction of these gliders, the Navy Department has been most emphatic that they shall be built, insofar as possible, from non-strategic materials in order that as much aluminum as

possible and other metals necessary in the manufacture of aircraft, tanks, etc. can be devoted to that purpose. The use of molded plywood for the manufacture of all types of civil and military aircraft is increasing with tremendous rapidity and it is expected that with the exception of the very heavy bombers and large commercial aircraft, planes of all types will be made completely of molded plywood.

Although considerable attention is being devoted to the subject of plywood airplanes, this type of construction is not new. Research and chemical advances in the past few years have simply culminated the work which began some fourteen years ago when the Lockheed Vega was produced, a plane with a molded casein glued plywood fuselage. The production method today is basically the same as used by Vega, except that present molds are constructed of wood, whereas previously concrete or metal was used.

Above—Engineer's sketch of an experimental 12-place troop carrying glider to be made for the Navy in a Baltimore plant.

The principal difference between the new molded plywood and the old, lies in the type of plastic, or glue, used. Both the old and present systems employ fluid pressure and heat applied to the resin, or glue, coated veneers which have been placed against properly slotted and contoured molds. The "cooking" process then molds the veneers into a single homogeneously bonded unit. This plastically molded plywood is not only absolutely water-proof, mold-proof and insect-proof, but the bond between the plies is stronger than wood itself and weight-for-weight, plywood is stronger than metal.

Thermo-setting plastics, one of the two types employed, are heat hardening. As described by those familiar with the process when the temperature is raised and pressure applied simultaneously, a change known as polymerization takes place. Polymerization, it may be added, is describable somewhat as the manner in which concrete is poured and then sets. Plastics of this type are derived from phenol and urea formaldehydes and the furfural resins. The public already is familiar with a long line of products of these plastics—steering wheels, ash trays, electrical insulating parts and so forth. The other type of plastics is known as "thermo-plastics" and these,

(Continued on page 54)

HOW TO GET AN ARMY CONTRACT

Manufacturers from the army viewpoint are those whose facilities are sufficiently extensive to undertake prime contracts, which means contracts calling for large mass production and production of complete finished equipment. Small manufacturers are considered to be best adapted for subcontracting.

If a manufacturer is of the opinion he can handle prime contracts he must be prepared to discuss in a specific manner both his plant and productive capacity. Therefore, as a first step, a manufacturer should get in touch with the Procurement Planning District office for the region in which he is located. However, as each branch of the army maintains its own procurement planning, a manufacturer should determine which branch procures the type of material or equipment he is able to make.

Addresses of the various branches' district offices and the southern states they serve are appended. The items purchased and method involved at the different depots, etc., will be given in the February Manufacturers Record.

AIR CORPS

Federal Office Bldg., 90 Church Street, New York, N. Y. (This is the Eastern District office for the southern states of Md., Va., N. C., S. C., Ga., and Fla.)

8505 W. Warren Avenue, Detroit, Mich. (This is the Central District office for the southern states of W. Va., Ky., Tenn., Ala., Miss., Mo., Ark., La., Okla., and Tex.)

CHEMICAL WARFARE SERVICE

292 Madison Ave., New York, N. Y. (For the southern state of Md.)

American Bank Bldg., 6th Ave. and Grant St., Pittsburgh, Pa. (For the southern states of W. Va., Ky., Va., Tenn., N. C., Ala., Ga., S. C., and Fla.)

Room 1506, N. Wacker Drive, Chicago, Ill. (For the southern states of Mo., Okla., Ark., Tex., La., and Miss.)

CORPS OF ENGINEERS

900 U. S. Custom House, 2nd and Chestnut Sts., Philadelphia, Pa. (For the southern state of Md.)

American Bank Bldg., 6th Ave. and Grant St., Pittsburgh, Pa. (For the southern states of Ky. and W. Va.)

Room 533, Custom House, Mobile, Ala. (For the southern states of Ala.)

Ark., Fla., Ga., La., Miss., N. C., Okla., S. C., Tenn., Tex., and Va.)

1117 U. S. Post Office Bldg., Chicago, Ill. (For the southern state of Mo.)

MEDICAL DEPARTMENT

Kenyon Bldg., 57th St. and First Ave., Brooklyn, N. Y. (For the southern states of Md., Va., W. Va., N. C., S. C., Ga., and Fla.)

Second and Arsenal Sts., St. Louis, Mo. (For the southern states of Mo., Ky., Okla., Ark., Tenn., Tex., La., Miss., and Ala.)

ORDNANCE DEPARTMENT

Room 1300, Mitten Bldg., Broad and Locust Sts., Philadelphia, Pa. (For the southern states of Md., Va., N. C., and S. C.)

1202 Chamber of Commerce Bldg., Pittsburgh, Pa. (For the southern state of W. Va.)

831 Engineer Bldg., Cincinnati, Ohio. (For the southern states of Ky., and Tenn.)

700 Frank Nelson Bldg., Birmingham, Ala. (For the southern states of La., Miss., Ala., Ga., and Fla.)

Room 935, U. S. Custom House, St. Louis, Mo. (For the southern states of Mo., Okla., Ark., and Tex.)

QUARTERMASTER CORPS

Philadelphia Quartermaster Depot, 21st and Johnston Sts., Philadelphia, Pa. (For the southern states of Md., and Va.)

Jeffersonville Quartermaster Depot, 10th St. and Meigs Ave., Jeffersonville, Ind. (For the southern states of Ky., and W. Va.)

Kansas City Quartermaster Depot, Independence and Hardesty Aves., Kansas City, Mo. (For the southern states of Mo., and Ark.)

San Antonio General Depot, Fort Sam Houston, Tex. (For the southern states of Okla., and Tex.)

Quartermaster Procurement Officer, 207 Spring St., N. W., Atlanta, Ga. (For the southern states of Tenn., N. C., S. C., La., Miss., Ala., Ga., and Fla.)

SIGNAL CORPS

Philadelphia Signal Corps Procurement District, Wissahicken Ave. and Abbotsford Rd., Philadelphia, Pa. (For the southern state of Md.)

Chicago Signal Corps Procurement District, 1819 W. Pershing Rd., Chicago, Ill. (For all southern states except Md.)

LOUISIANA

New Orleans
R. E. Judd, State Director
Room 423, Canal Bldg.

Shreveport

R. H. Cone, Acting Mgr.
916 Giddens Lane Bldg.
Milan & Marshall Sts.

MARYLAND

Baltimore
G. W. Creighton, State Dir.
Federal Reserve Bank Bldg.
Lexington & Calvert Sts.

MISSISSIPPI

Jackson
A. G. McIntosh, Acting Mgr.
610 Tower Bldg.

MISSOURI

St. Louis
F. J. McDevitt, Mgr.
Boatmen's Bank Bldg.
Locust St.

Kansas City

R. W. Webb, Mgr.
Federal Reserve Bank Bldg.
Tenth St. & Grand Ave.

NORTH CAROLINA

Charlotte
Frank H. Cothran, Chmn. Adv. Comm.
New Liberty Life Bldg.

OKLAHOMA

Oklahoma City
Morton R. Harrison, State Dir.
540 Key Bldg.

Tulsa

John H. Keys, Acting Mgr.
435 Kennedy Bldg.

SOUTH CAROLINA

Columbia
D. E. McDuffie, Acting Mgr.
Room 204-206, Manson Bldg.
1207 Taylor Street

TENNESSEE

Memphis
Arthur M. Field, State Dir.
2112 Sterick Bldg.

Chattanooga

Paul E. Shacklett, Mgr.
909-910 James Bldg.

Knoxville

W. W. Mynatt, Acting Mgr.
202-204 Goode Bldg.

Nashville

W. G. Shitsitt, Mgr.
1014 Stahlman Bldg.

TEXAS

Dallas
A. J. Langford, Mgr.
Fidelity Bldg.

El Paso

L. A. Wilke, Mgr.
222 El Paso National Bldg.

Houston

I. M. Griffin, Mgr.
Federal Reserve Bank Bldg.
Texas Ave. & Caroline St.

San Antonio

P. E. Locke, Mgr.
1100 South Texas Bank Bldg.
Houston & Navarro Streets

(Continued on page 54)

Southern Field Offices of the Division of Contract Distribution

ALABAMA

Birmingham
L. E. Geohegan, Mgr.
301 Phoenix Bldg.
1706 Second Ave., N.

ARKANSAS

Little Rock
Alfred M. Lund, Mgr.
304 Rector Bldg.
Third & Spring Sts.

FLORIDA

Jacksonville
Charles C. McCubbin, State Dir.
620 Hildebrandt Bldg.

Miami

Forrest D. Banning, Acting Mgr.
514 Congress Bldg.

Tampa

Arthur B. Hale, Mgr.
901 Wallace S. Bldg.

GEORGIA

Atlanta
W. C. Cram, Jr., Mgr.
Suite 150, Hart Bldg.

KENTUCKY

Louisville
Prentiss M. Terry, Mgr.
200 Todd Bldg.

CONSTRUCTION RECORD in 1941

*continued boom
expected in
the South
during 1942*

APPROACHING the three billion dollar mark as the year expired, Southern construction during 1941 established new high records. Through the entire twelve months, construction in the sixteen States below the Mason and Dixon line rode the flood tide of defense preparations. When war was declared shortly

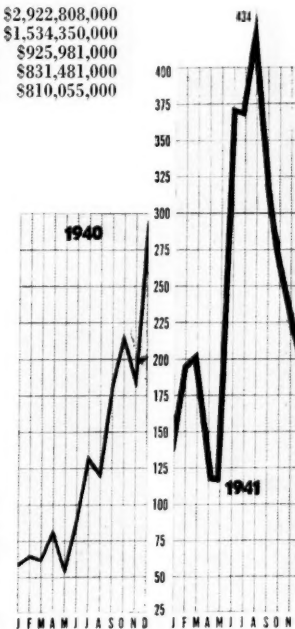
building in the South, or in the country as an entirety, will do to the statistical position of the construction industry, may easily be ascertained from a review of the total Southern expenditures in private construction, as compiled from reports received by the *Manufacturers Record*. The total for 1941 was 203 million dol-

South's Construction by States

	December, 1941 Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1941	Contracts Awarded Twelve Months 1940
Alabama	\$2,692,000	\$25,158,000	\$250,254,000	\$64,974,000
Arkansas	57,596,000	9,874,000	263,885,000	20,624,000
Dist. of Columbia	7,495,000	55,798,000	57,587,000	51,899,000
Florida	7,499,000	11,955,000	130,332,000	119,209,000
Georgia	6,893,000	17,454,000	170,013,000	93,946,000
Kentucky	1,359,000	39,844,000	125,316,000	31,634,000
Louisiana	6,213,000	29,937,000	210,292,000	63,296,000
Maryland	9,892,000	18,394,000	200,221,000	137,440,000
Mississippi	2,775,000	15,095,000	78,951,000	45,695,000
Missouri	4,011,000	8,969,000	125,830,000	81,618,000
North Carolina	2,676,000	93,390,000	105,994,000	62,918,000
Oklahoma	1,085,000	16,584,000	144,309,000	21,369,000
South Carolina	4,394,000	13,954,000	69,302,000	61,393,000
Tennessee	3,303,000	52,068,000	170,959,000	68,203,000
Texas	29,735,000	145,080,000	507,510,000	249,357,000
Virginia	13,650,000	52,672,000	202,231,000	208,395,000
West Virginia	26,356,000	16,412,000	109,822,000	152,370,000
TOTAL	\$187,624,000	\$622,638,000	\$2,922,808,000	\$1,534,350,000

Southern construction during the last five years is graphically depicted in the charts below. The totals for each of the years are:

1941, \$2,922,808,000
1940, \$1,534,350,000
1939, \$925,981,000
1938, \$831,481,000
1937, \$810,055,000



after the Japanese attack on Hawaii early in December, however, newly started activity was already three months along a steady descent.

The December total, in face of this decrease, was still sixty million dollars above the year's small construction month, which occurred in May when new contracts amounted to over 117 million dollars. Three months afterwards, new contracts hit the peak of the year—434 million dollars in August. Totals for succeeding months tapered off to December's 187 million dollar total.

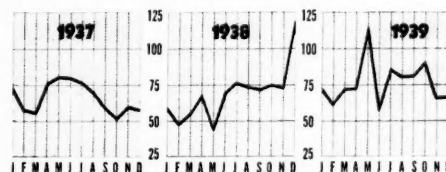
Forecasts for 1942 indicate another boom construction year, perhaps smaller than 1941, but with more government financed defense plant expansions, increased military and naval construction and greater expenditures for defense housing and community facilities. The South shared substantially in last year's program. It is expected that it will receive its proportion of projects during the current year, especially in view of the protection afforded by its wide inland expanses and because of the strategic importance of its long coast line.

Private construction will drop to a minimum. Prospects in this field are mostly in the residential category. Difficulties will be encountered in those areas where no defense activities are being carried out. "The construction industry as a whole," however, says the Office of Production Management, "will have a very active year throughout 1942, irrespective of what happens to non-defense construction."

What outright elimination of private

lars, or somewhat over six per cent of the \$2,922,808,000 total for all Southern construction.

Industrial construction totals, made up from the same sources, show the figure (Continued on page 54)



South's Construction by Types

	December, 1941 Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1941	Contracts Awarded Twelve Months 1940
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$1,287,000	\$3,932,000	\$19,041,000	\$19,538,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	1,673,000	1,342,000	28,441,000	30,750,000
Residential (Apartments, Hotels, Dwellings)	13,377,000	6,300,000	142,851,000	98,707,000
Office	361,000	250,000	12,684,000	11,537,000
INDUSTRIAL	\$16,698,000	\$11,844,000	\$203,017,000	\$160,532,000
PUBLIC BUILDING				
City, County, State, Federal	\$89,249,000	\$156,848,000	\$1,400,469,000	\$412,743,000
Housing	\$29,970,000	\$204,654,000	\$735,253,000	\$528,998,000
Schools	5,971,000	41,620,000	152,289,000	111,400,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	3,965,000	13,343,000	39,360,000	26,567,000
Federal, County, Municipal Electric	\$39,906,000	\$259,617,000	\$926,902,000	\$666,965,000
Sewers and Waterworks	\$17,929,000	\$24,999,000	\$135,347,000	\$59,199,000
ROADS, STREETS AND BRIDGES	2,459,000	104,596,000	61,374,000	74,416,000
TOTAL	3,085,000	33,057,000	26,404,000	10,408,000
TOTAL	\$23,473,000	\$162,652,000	\$223,125,000	\$144,023,000
TOTAL	\$18,298,000	\$31,677,000	\$169,295,000	\$150,087,000
TOTAL	\$187,624,000	\$622,638,000	\$2,922,808,000	\$1,534,350,000

Important New Industrial Plants and Expansions in the South During December

ALABAMA

ANNISTON—furnace—Kilby Steel Company has started work on installation of a 35-ton open hearth furnace at plant; will increase production 100,000 tons daily.

ARKANSAS

Power lines—Arkansas Power & Light Co., Pine Bluff, will construct 285 miles of high tension power lines in Arkansas to bring electricity from an 11-utility power pool for initial operations at the aluminum plant on Lake Catherine; contract for pool has been signed; of companies involved, each which will do its own planning and working.

Alumina plant—The McGeorge Construction Company of Pine Bluff is completing grading and clearing of plant site and railroad in connection with \$21,000,000 alumina plant between Bauxite and Bryant, in Saline County, 22 miles from Little Rock; will be operated by Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa., parent company of Republic Mining and Manufacturing Co.; F. A. Billhardt of Cleveland, Ohio, construction superintendent; large portion of plant will consist of pipelines and huge storage tanks where low grade bauxite ore will be processed; office building of wood construction, other buildings of concrete and brick or concrete and corrugated iron; plant will have production capacity of about 400,000,000 lbs. annually; requiring approximately 800,000,000 lbs. of ore annually; plant will be a refining unit and will probably produce alumina for the five new aluminum plants now planned or under construction; temporary office buildings have been completed on plant site; railroad right-of-way nearing completion; plant will be served by Bauxite and Northern Railroad.

EL DORADO—plant—War Department let fixed-fee contract to Lion Chemical Corp. for consultations service and advice to architect-engineer and contractor regarding adequacy of design, construction of plant and production equipment for the manufacture of ammonium nitrate and anhydrous ammonia, at the Ozark Ordnance Works; under optional titles of contract, company will train personnel for operation of plant; will operate plant for one year at a total estimated cost of \$2,398,270.

JASPER—mine—John Stone & Associates, Chicago, Ill., will develop Big Jumbo zinc mine; construct dry process mill; owner builds.

FLORIDA

DUNEDIN—plant—Citrus Concentrates, B. C. Skinner, President, is erecting \$1,500,000 citrus concentrate plant; 400-ft. square and located on 25-acre tract of land on east side of Dunedin-Dunedin Isles Road; will produce orange concentrates; wood structure; W. H. Armston Co., in charge of work.

LOUISIANA

NEW ORLEANS—sewers—J. G. White Engineering Corp., Hibernia Bank Bldg., let contract to Boh Brothers Construction Co., for construction of sewers and water supply, fire emergency and storm drains in connec-

Contracts Awarded

tion with shipyard on Industrial Canal at Florida Ave., for Louisiana Shipyards, Inc. **NEW ORLEANS**—alterations—J. G. White Engineering Corp., Hibernia Bank Building, let contract to John Riess, for the following work at plant of Louisiana Shipyards, Inc., Florida Ave. and Industrial Canal: new entrance to locker and shower room; offices for ship foremen; electrical maintenance store rooms and work shop; office in outfitting warehouse; vents for blacksmith furnaces; oil gauges, etc.

MARYLAND

BALTIMORE—extension—Sinclair Refining Co., 630 Fifth Ave., New York, let contract to O. C. Whitaker Co., Tulsa, Okla., for approximately 360 miles of pipe line extending from Marcus Hook to Greensburg, Pa., about 20 miles southeast of Pittsburgh; from a point near Reading, Pa., there will be a branch line to Baltimore; 8 pump stations will be constructed on the line.

FAIRFIELD STA., BALTIMORE—machine shop—Maryland Dry Dock Co., let contract to Baltimore Contractors, 23 N. Central Ave., Baltimore, at \$124,027 for construction of machine shop; J. E. Greiner Co., 1201 St. Paul St., Baltimore, Engr.

SPARROWS POINT—shipways, etc.—Bethlehem Shipbuilding Co. let contract to McLean Contracting Co., 1301 Fidelity Bldg., Baltimore, for 3 shipways and shop building; approximate cost \$2,000,000; private plans.

MISSOURI

NORTH KANSAS CITY BR., KANSAS CITY—addition—Standard Steel Works, Mason L. Thompson, President, let contract to John Thompson Construction Co., W. 10th St., Kansas City, for addition to plant.

NORTH CAROLINA

NORTH WILKESBORO—dairy—Coble Dairy Products Co., Geo. Coble, President, Lexington, let contract to George W. Kane, Greensboro, for construction of \$125,000 plant; will manufacture powdered and condensed milk; masonry construction; contain a receiving room, processing room, two cold storage rooms, powdered milk room, powdered milk storage room, two 250-h.p. motors, etc.; Voorhees & Everhart, High Point, Archts.

OKLAHOMA

MADILL—plant—Warren Petroleum Corp., H. W. Harts, Vice President, Tulsa, is erecting isobutane plant, 8 miles east of Madill, in the Cumberland Pool; will manufacture all grades of natural gasoline, commercial butane, isobutane and commercial propane; plant is being constructed by Gasoline Plant Construction Corp., Houston, Tex.

TENNESSEE

CHATTANOOGA—pipeline—Shell Oil Co., Nashville, is constructing a pipeline take-off station adjacent to the Volunteer Ordnance Works.

TEXAS

BROWNSVILLE—ships—Brownsville Shipbuilding Corp., S. Finley Ewing, President, just completed construction of ship yards; received contract for construction of four 105-ft. aircraft rescue ships; cost \$100,000 each, without machinery and fittings which will be about \$60,000 each; will draw 6 ft. of water and will be powered with three 600-h.p. gasoline engines; A. M. Westergard, in charge of construction.

TEXARKANA—plant—Winston Brothers Co., C. F. Haglin & Sons, Inc., The Missouri Valley Bridge & Iron Co., Sollitt Construction Co., Inc., George M. Mann, Controller, general contractors for the construction of the Lone Star Ordnance Plant, let the following subcontracts: plumbing, heating, ventilating, water and steam distribution and power facilities, to Associated Mechanical Contractors, Dallas; electrical work, power and transmission lines to Paramount Electric Co., Dallas; structural steel work, Wisconsin Bridge & Iron Co., Milwaukee, Wisconsin; furnishing of concrete, to Central Ready-Mixed Concrete Co., Milwaukee, Wisconsin; construction and erection of two 200,000-gallon elevated steel water tanks to Pittsburgh-Des Moines Steel Co., 3436 Neville Island, Pittsburgh, Pa.; Prack & Prack and Chester Engineers, Pittsburgh, Pa., Archts. and Engrs.

WACO—factory—Inge Construction Co., Dallas, general contractor for construction of glass factory for Owens-Illinois Glass Co., Dallas, let the following subcontracts: plumbing, heating, air conditioning and process piping to L. O. Layton, Tyler; electric wiring to Hall Electric Co., Dallas; Roberts & Co., Atlanta, Ga., Archt.

VIRGINIA

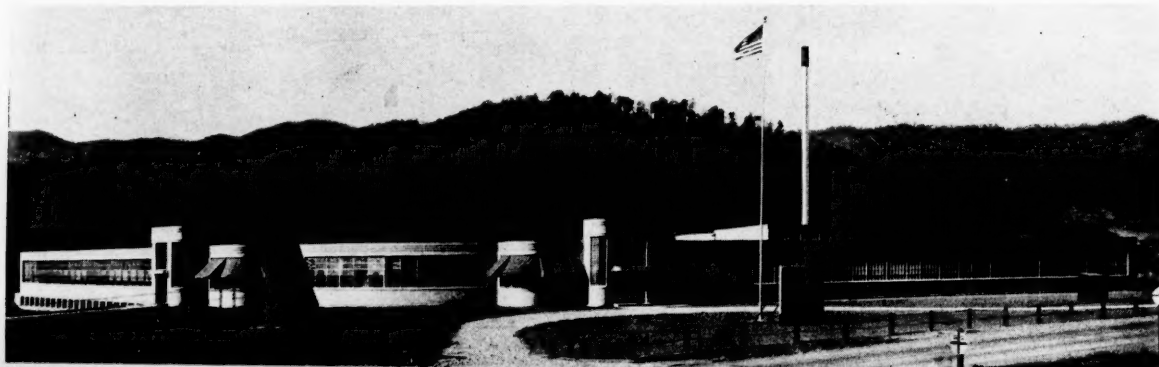
RICHMOND—equipment—Chesapeake & Potomac Telephone Co. of Virginia, R. C. McCann, General Manager, let contract to Western Electric Co. to furnish telephone switching equipment and cables for the \$375,000 expansion program.

VERONA—plant—Staunton Textile Corp., subsidiary of Celanese Corp. of America, has started work on main plant, near Verona.

WEST VIRGINIA

MORGANTOWN—chemical products—War Department signed \$15,000,000 expansion contract with E. I. du Pont de Nemours, Wilmington, Del., for construction, equipment and operation of an additional unit to permit production of a more diversified line of chemical products; first two units were for the production of ammonia; this contract will bring total cost of plant to about \$55,000,000.

Buildings of the Dayton Rubber Manufacturing Company's plant at Hazelwood, North Carolina.



Contracts Proposed

ALABAMA

Coke plant—Sheffield Steel Corp. of Texas, Houston, Tex., will build coke and by-products plant on Warrior River, either at Tuscaloosa or Mobile, to meet coke requirements of 750-ton blast furnace to be constructed on Houston Ship Canal, near Houston, Tex.; it is reported that plant will be built and owned by Defense Plant Corp.

Graphite mill—Coosa Cassiterite Corp., Charles A. Dean, President, Alexander City, contemplates erection of flake graphite mill, near present tin operations in Coosa County; will require the following: Gyratory or Jaw Crusher; Air Compressor (2 hammer size); Symon Crusher or Hammer Mill; Ball Mill and Classifier; Rougher and Cleaner Flotation Cells; Drum Filter and Concentrates Drier; Classifications Screens; Motors, 220 volts.

BIRMINGHAM—expansion—Republic Steel Corp., will soon let contract for construction of mine expansion at Spaulding Ore Mines; approximate cost \$3,000,000; private plans.

GORGAS—plant—Alabama Power Co., Birmingham, will soon call for bids for construction of steam plant; private plans.

MOBILE—expansion—The International Paper Co., operator of Southern Kraft pulp and paper mills, acquired 23,500-acres of land in Chunchula area of Mobile County.

ARKANSAS

Power line—State Utilities Commission will have hearing January 2 on application of Southwestern Gas & Electric Co., to construct 132,000-volt transmission line from Arkansas Power & Light Company's power line 16 miles north of Ashdown to Arkansas-Texas line near Texarkana; proposed line of 22 miles will be used as interconnecting unit to transmit power over private utility facilities to Lake Catherine aluminum plant.

TUCKERMAN—mill—H. Hicks plans lumber mill.

DISTRICT OF COLUMBIA

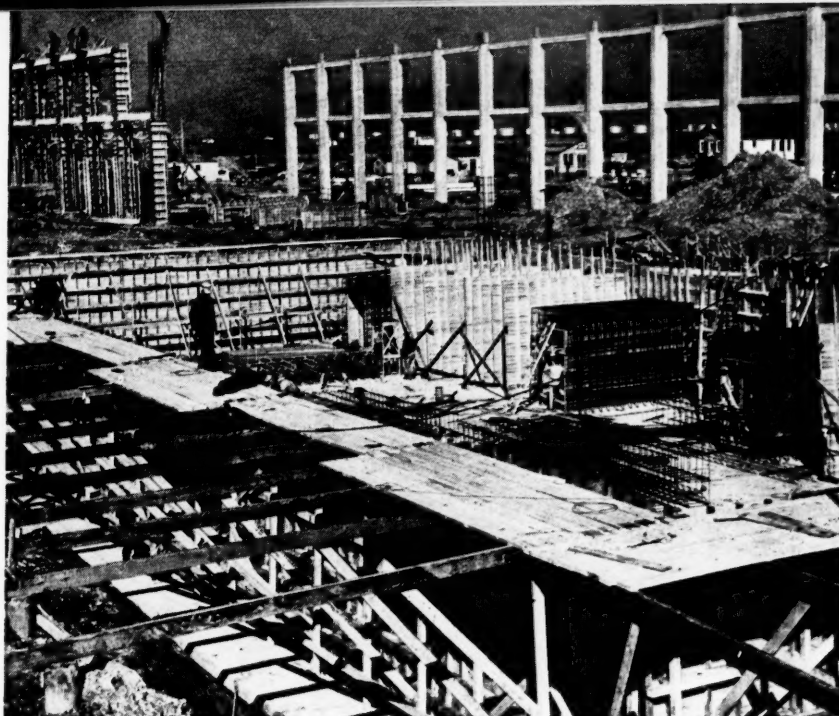
WASHINGTON—expansion—Chesapeake & Potomac Telephone Co., C. A. Robinson, Vice President and General Manager, authorized additional expenditures of \$2,500,000 for expansion of telephone service; \$129,000 for 80 additional switchboard positions at two locations; \$1,700,000 for day-to-day work of installing, disconnecting and moving telephone facilities and for minor outside plant construction; remainder of appropriation expended for additional cable, general equipment and large private branch exchange.

WASHINGTON—expansion—Federal Power Commission ordered immediate installation of interconnection between Potomac Electric Power Co. and Virginia Public Service Co.; will be made through a heavy-duty cable under Potomac River from Potomac Power Company's facilities to a spot near new War Department office building; Braddock Light & Power Company's facilities will be used for delivery of the current.

FLORIDA

FORT LAUDERDALE—expansion—Dooley's Basin & Dry Dock, Inc., is expanding rail transfer system to make possible the moving of 135 ft. boats from construction and repair sheds to the 500-ton horizontal deck, Marine railway; provisions are being made for altering present covered wet storage sheds, in connection with program under which company will build four 100-foot aircraft rescue boats for the Quartermaster Corps, U. S. Army.

JACKSONVILLE—expansion—Merrill-Stevens Drydock & Repair Co., James C. Merrill, President, received Navy Department allocation of \$3,000,000 for expansion of plant facilities; includes construction of 12,000-ton floating drydock, 500-ft. long and capable of taking care of the largest ship that puts into the Jacksonville port and ample enough to hoist a Navy fighting ship of the cruiser type; entire plant will be modernized and equipment installed.



Construction was being rushed last month on the \$2,000,000 plant being built at Port Arthur, Texas, by Texas Steel Manufacturing Company and which is now going into production. The plant, which will employ about 500 workers, will contain two open hearth furnaces and a 450-foot rolling mill.

GEORGIA

MACON—addition—Reynolds Corp., c/o Capt. A. C. Lindloff, 200 Southern Bldg., Washington, D. C., probably build addition to machine shop at fuse plant.

PORT WENTWORTH—plant—MacEvoy Shipbuilding Co. will reopen old Terry Shipbuilding plant, because of contract made with United States Maritime Commission; 6,000-ton concrete oil barges scheduled to be constructed in the first year at a cost of \$60,000,000.

KENTUCKY

HAZARD—enlargement—Public Service Commission issued permit to Kentucky-West Virginia Power Co. for \$4,000,000 enlargement of plant; present capacity approximately 10,000 k.w. will be expanded to 40,000 k.w.

LOUISVILLE—expansion—Louisville Transmission Corp. has been chartered with capital of \$10,000 by group of Louisville Gas & Electric Company officials as first step in proposed construction of a \$3,850,000 power line to help feed current into the network of the Tennessee Valley Authority; line will probably be a double-circuit steel tower development of 154,000-volt capacity and a capacity of each of two circuits of 120,000 k.w. hours; line will carry current from the L. G. & E.'s Paddy's Run Station to South Nashville Station of the T.V.A. near Nashville, Tenn.; will be approximately 165 miles long; approximately 60 miles of equipment will be owned by the L. G. & E.; remainder will be owned by T.V.A.; total cost of the project approximately \$7,700,000.

TYRONE—plant—Public Service Commission issued permit to Kentucky Utilities, Washington Reed, Vice President, for construction of a \$4,000,000 plant; designed for original output of 25,000 k.w. and will be built with the view of doubling its capacity if necessary.

LOUISIANA

BATON ROUGE—pipeline—Carter Oil Co., Tulsa, Okla., subsidiary of Standard Oil Company of New Jersey, plans construction of 200-mile crude oil pipeline outlet from the Tinsley Field to Baton Rouge; approximate cost \$1,500,000.

BATON ROUGE—aviation gasoline—Standard Oil Company of Louisiana plans additional \$17,000,000 expansion program in North Baton Rouge; addition, major part of which will be for manufacture of aviation gasoline, will bring total expansion program to approximately \$40,000,000; engineering plans now being made, construction will probably begin in spring of 1942; will install fluid catalyst cracking units, new crude distillation equipment, alkylation equipment and necessary attendant facilities; equipment will more than double present output; 10-year exemption for new project was approved by State Board of Commerce and Industry.

LAKE CHARLES—addition—Continental Oil Co. plans \$375,000 addition to refinery; includes construction of two additional towers with their complement of reboilers, exchangers and pumps; high pressure storage facilities to handle 2,500 barrels daily additional casinghead gasoline and condensibles from Continental, Ville Platte and Tepeate oil fields; will increase production of high octane aviation gasoline at plant from 18,000 to 24,000 barrels a month.

LAKE CHARLES—plant—Petroleum Chemicals, Inc., New York, plans construction of a \$5,000,000 chemical plant; will consist of two units and will manufacture chemicals.

LAKE CHARLES—plant—Cost of the Mathieson Alkali Works' proposed magnesium plant, which will probably be constructed next year, has been increased to \$24,000,000.

NEW ORLEANS shipyard—Higgins Industries, Inc., propose erection of shipyard on the Industrial Canal; buildings will be steel framed, covered with corrugated sheet iron.

PORT BARRE—expansion—Port Barre Lumber Co. plans expansion; company has complete plant to pre-fabricate demountable house in sections and can manufacture about 90 houses per month.

MARYLAND

FAIRFIELD STA., BALTIMORE—machine shop—Maryland Dry Dock Co. received bids December 9 for construction of machine shop; J. E. Greiner Co., 1201 St. Paul St., Baltimore, Engr.; following are prospective estimators: Loechi Construction Co., Cummings Construction Corp., Leimbach & Williams, John K. Ruff Co., Cogswell Co., Consolidated Engineering Co., Baltimore Contractors, C. Ralph Leland, Morrow Brothers, Davis Construction Co., Whiting-Turner Contracting Co., all Baltimore; William H. Sands, Inc., Towson.

(Continued on page 56)

National Defense Program Awards in the South

ALABAMA

Value of Total Awards June 1940
Through November 1941

Army, Navy & Maritime Commission	\$556,149,000
Civil Aeronautics Authority	339,000
U. S. Housing Administration ..	4,239,000
Public Buildings Administration ..	1,400,000
Works Progress Administration ..	6,337,000
Office of Education	2,004,000
National Youth Administration ..	1,910,000
Reconstruction Finance Corporation	5,698,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Ordnance
Kilby Steel Co., Anniston, Ala., shell machining, \$83,993.
U. S. Pipe & Foundry Co., Birmingham, Ala., shells, \$90,688.

Quartermaster Corps

Wm. L. Barrell Co., Inc., New York, N. Y. (Lincoln Mills of Ala., Huntsville, Ala.) 95,000 yds. duck, cotton, \$28,082.
Sterling Braid Corp., New York, N. Y. (Mill: Pioneer Fabric Co., Gadsden, Ala.) 440,000 yds. cord edge braid for caps, \$8,800.
Miller & Company, Inc., Selma, Ala., 5,000,000 ea. pins, tent, shelter, \$49,500.
The Andala Co., New York City, N. Y. (Mill: Andalusia, Ala.) 50,000 shirts, flannel, O.D., \$24,500.

Gardiner-Warring Co., Inc., Florence, Ala., 50,000 pr. drawers, wool, \$60,440.

William L. Barrell Co., New York, N. Y. (for mfr. at Lincoln Mills at Alabama, Huntsville, Ala.) 1,000,000 yds. duck, cotton, tent, \$295,600.

The Russell Mfg. Co., Alexander City, Ala., 60,000 pr. wool drawers, \$72,780.

The Russell Mfg. Co., Alexander City, Ala., 60,000 ea. wool undershirts, \$77,730.

Corps of Engineers

King & Boozer, Anniston, Ala., prefabricated buildings and insulating boards, \$64,847.
Southeastern Sand & Gravel Co., Inc., Tallahassee, Ala., aggregate, \$56,000.

Signal Corps

Joslyn Co., New York, N. Y. (for mfr. at T. R. Miller Mill, Brewton, Ala.), poles, \$21,494.

ARKANSAS

Value of Total Awards June 1940
Through November 1941

Army, Navy & Maritime Commission	\$158,555,000
Works Progress Administration ..	1,527,000
Office of Education	1,273,000
National Youth Administration ..	1,765,000
Reconstruction Finance Corporation	433,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Barksdale Mfg. Co., Blytheville, Ark., 3,281-400 ea. pins, tent, shelter, \$36,752.
Winters Handle Company, Benton, Ark., 304,200 ea. pins, tent, shelter, \$3,407.
Sheldon Handle Co., Malvern, Ark., 914,000 ea. pins, tent, shelter, \$9,144.

FLORIDA

Value of Total Awards June 1940
Through November 1941

Army, Navy and Maritime Commission	\$223,921,000
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Civil Aeronautics Authority	1,364,000
Federal Works Administration ..	1,408,000
U. S. Housing Administration ..	2,636,000
Public Buildings Administration ..	2,994,000
Works Progress Administration ..	16,869,000
Office of Education	2,123,000
National Youth Administration ..	1,249,000
Reconstruction Finance Corporation	6,425,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Dade Mattress & Mfg. Co., Inc., Miami, Fla., 6,675 mattresses, cotton, \$36,045.

Corps of Engineers

Robert Maxwell Brown, Tampa, Fla., dredging, intracoastal waterway, Jacksonville to Miami, Fla., \$39,078.

Merritt Dredging Co., Inc., Jacksonville, Fla., dredging, Shipyard River Channel S. C., \$23,500.

C. T. Dawkins, Tampa, Fla., construction of administration building, Drew Field, Tampa, Fla., \$6,962.

John T. Mapel, Miami Beach, Fla., installation of new primary service and switching cubicle, MacDill Field, Tampa, Fla., \$5,885.

GEORGIA

Value of Total Awards June 1940
Through November 1941

Army, Navy and Maritime Commission	\$201,576,000
Civil Aeronautics Authority	739,000
Federal Works Administration ..	664,000
U. S. Housing Administration ..	3,346,000
Public Buildings Administration ..	2,517,000
Works Progress Administration ..	5,071,000
Office of Education	2,066,000
National Youth Administration ..	2,158,000
Reconstruction Finance Corporation	459,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Royal Cabinet Co., Newnan, Ga., 200,000 ea. pins, tent, wood, \$4,000.

Thomson Co., New York, N. Y. (Mill: Millen, Ga.) 100,000 yd. shirts, flannel, O.D., \$48,951.

Riegel Textile Corp., New York, N. Y. (Mill: Trion Co., Trion, Ga.) 750,000 yds. drill, cotton, O.D., \$194,250.

Augusta Bedding Co., Augusta, Ga., 5,000 mattresses, cotton, \$27,000.

Southern Spring Bed Co., Atlanta, Ga., 5,000 mattresses, cotton, \$27,000.

Corps of Engineers

Fairbanks, Morse & Co., Atlanta, Ga., furnishing pumps, \$11,923.

Ordnance

Centennial Cotton Gin Co., Columbus, Ga., practice bombs, \$161,015.

KENTUCKY

Value of Total Awards June 1940
Through November 1941

Army, Navy and Maritime Commission	\$74,318,000
Civil Aeronautics Authority	324,000
Public Buildings Administration ..	2,753,000
Works Progress Administration ..	5,950,000
Office of Education	1,691,000
National Youth Administration ..	1,816,000
Reconstruction Finance Corporation	40,239,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Cumberland Mfg. Co., Inc., Princeton, Ky., 50,000 shirts, flannel, O.D., \$24,500.

American Cap Mfg. Co., Louisville, Ky., 60,000 ea. caps, field, cotton, khaki, \$11,400.

Carrell-Rogers Co., Inc., Louisville, Ky., parts for pack saddles, \$14,225.

Ordnance

Shuler Axle Co., Louisville, Ky., forgings, \$7,235.

Corps of Engineers

Breslin Construction Co., Inc., Louisville, Ky., surfacing, widening, extending existing runways and installing electric ducts and drain pipe, Glynn County Airport (St. Simon Island), Brunswick, Ga., \$134,165.

Thirwell Electric Co., Louisville, Ky., alterations and extensions to night lighting system, Bowman Field, Louisville, Ky., \$8,356.

LOUISIANA

Value of Total Awards June 1940
Through November 1941

Army, Navy and Maritime Commission	\$212,768,000
Civil Aeronautics Authority	841,000
U. S. Housing Administration ..	1,076,000
Public Buildings Administration ..	2,216,000
Works Progress Administration ..	7,164,000
Office of Education	1,803,000
National Youth Administration ..	1,397,000
Reconstruction Finance Corporation	2,500,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Shreveport Mattress Co., Shreveport, La., 5,000 mattresses, cotton, \$27,000.

Rex Mfg. Company, Inc., New Orleans, La., 50,000 shirts, cotton, khaki, \$24,500.

Lee Mfg. Company, Inc., Shreveport, La., 50,000 shirts, cotton, khaki, \$24,500.

Corps of Engineers

R. E. Swinney & Sons, Baton Rouge, La., constructing earthwork, South Bank Red River Levees, New Orleans District, \$7,920.

Todd-Johnson Dry Docks, Inc., New Orleans, La., dry-docking and repairing U. S. Dredge "Benyard," \$54,005.

Ordnance

Fred I. Getty, Jennings, La., finishing gun tubes, \$240,000.

MARYLAND

Value of Total Awards June 1940
Through November 1941

Army, Navy and Maritime Commission	\$987,661,000
Federal Security Agency	4,217,000
U. S. Housing Administration ..	5,387,000
Public Buildings Administration ..	10,627,000
Works Progress Administration ..	6,303,000
Office of Education	1,663,000
National Youth Administration ..	1,103,000
Reconstruction Finance Corporation	272,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Corps of Engineers

County Commissioners of Garrett County, Md., relocation of county roads due to the construction of dam, Youghiogheny River dam and reservoir area, \$167,100.

Quartermaster Corps

The Manhattan Shirt Co., Paterson, N. J. (Mill: Salisbury, Md.), 50,000 shirts, flannel, O.D., \$24,500.

Signal Corps

Bendix Radio Division of Bendix Aviation, Baltimore, Md. (for mfr. at Towson, Md.) radio equipment, \$56,814.

Bendix Radio Div., Baltimore, Md. (for mfr. at Bendix Aviation Corp., Towson, Md.) radio parts, \$695,303.

Ordnance

Miller Supply Co., Chicago, Ill. (for mfr. at Bethlehem Steel Co., Sparrows Point, Md.), pipes, \$1,883.

H. B. Davis Co., Baltimore, Md., primer and enamel, \$77,664.

The defense contracts listed here are the latest given out by the War Department. It is the department's decision not to publish similar information until further notice. The Manufacturers Record has available a complete list of the "prime" contracts awarded by the War and Navy Departments in the South between June 1940 and October 1941 inclusive. The list covers all awards with a value of \$50,000 or more except contracts for fuels, foodstuffs, and construction and production facilities. In other words, only manufacturing awards are included and these are alphabetically arranged by character of goods with information as to name and address of manufacturer and amount of the contract. Requests for this list will be filled as promptly as possible.

Bendix Aviation Corp., Eclipse Aviation Div., Bendix, N. J. (for mfr. at Bendix, N. J., and Baltimore, Md.) parts for tanks, \$28,022.
 Evered Co., Inc., Frederick, Md., practice mines, \$78,151.
 Triumph Explosives, Inc., Elkton, Md., percussion element assemblies, \$194,625.

MISSISSIPPI

Value of Total Awards June 1940
 Through November 1941

Army, Navy and Maritime Commission\$200,072,000
 Civil Aeronautics Authority 441,000
 Federal Security Agency 110,000
 U. S. Housing Administration 596,000
 Public Buildings Administration 550,000
 Works Progress Administration 5,492,000
 Office of Education 1,937,000
 National Youth Administration 1,638,000
 Reconstruction Finance Corporation 3,477,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Irwin B. Schwabe Co., Inc., New York, N. Y. (Mill: New Albany, Miss.) 50,000 shirts, flannel, O.D., \$24,189.
 Anderson Tully Co., (Memphis, Tenn. or Vicksburg, Miss.) 1,589,050 ea. pins, tent, wood, \$51,909.
 Hunter-Thomas, Inc., Tupelo, Miss., 50,000 shirts, flannel, O.D., \$24,500.

Corps of Engineers

St. Catharine Gravel Co., Inc., Natchez, Miss., concrete, \$119,100.

MISSOURI

Value of Total Awards June 1940
 Through November 1941

Army, Navy and Maritime Commission\$717,518,000
 Federal Works Administration 1,466,000
 Public Buildings Administration 1,891,000
 Works Progress Administration 19,849,000

Office of Education 1,779,000
 National Youth Administration 2,091,000
 Reconstruction Finance Corporation 426,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Ordnance

Larkin Packer Co., Davis Boring Tool Div., St. Louis, Mo., boring bars, \$1,118.
 Schlueter Mfg. Co., St. Louis, Mo., mines, \$65,250.
 Wagner Electric Corp., St. Louis, Mo., shells, \$86,095.
 Edwin F. Guth Co., St. Louis, Mo., projectiles, \$182,750.
 Wagner Electric Corp., St. Louis, Mo., ammunition, \$25,200.
 Emerson Electric Mfg. Co., St. Louis, Mo., boosters, \$117,810.
 St. Louis Steel Products Co., St. Louis, Mo., a mixing wire assemblies, \$60,350.

Corps of Engineers

E. S. Richardson, Kansas City, Missouri, wood tables and specialties, \$3,248.
 Stiers Bros. Construction Co., St. Louis, Mo., construction of earth levees, highway and railroad embankment, bank and channel protection, and concrete outlet structure, Mounds-Mound City, Ill. Cache River Diversion, \$543,089.
 Sternberg Dredging Co., St. Louis, Mo., dredging, St. Johns River, from Jacksonville to the ocean, \$361,347.
 Rhodes Equipment Co., St. Louis, Mo., single retort underfeed stokers, \$3,779.
 Melville B. Hall, Inc., St. Louis, Mo., copper wire and cable, \$4,398.

Quartermaster Corps

Brown Shoe Co., St. Louis, Mo., 46,500 pr. service shoes, \$108,320.
 Kanter Bedding Co., Kansas City, Mo., 10,000 mattresses, cotton, \$51,000.
 Englander Co., Inc., Chicago, Ill. (Mills: Dallas, Tex., Kansas City, Mo.) 10,000 mattresses, cotton, \$53,865.
 Empire Mattress Co., Kansas City, Mo., 5,000 mattresses, cotton, \$27,000.

Brown Shoe Company, St. Louis, Mo., 27,504 pr. leather boots, \$206,280.
 Rice-Stix Dry Goods Co., St. Louis, Mo. (Mill: Farmington, Mo.) 100,000 shirts, flannel, O.D., \$49,000.

International Shoe Company, St. Louis, Mo., 27,504 pr. leather boots, \$206,280.

Gideon Anderson Lumber Co., St. Louis, Mo. (Gideon, Mo.) 639,050 ea. pins, tent, wood, \$30,007.

Liberty Foundry Co., St. Louis, Mo., tables, \$23,113.

Henry Evers Mfg. Co., St. Louis, Mo., 36,800 poles, tent, ridge, \$30,912.

Royal Bedding Co., St. Louis, Mo., 20,000 mattresses, cotton, \$107,490.

Canvas Products Company, St. Louis, Mo., 109,736 barrack bags, \$64,744.

Premium Cap Co., St. Louis, Mo., 75,980 hats, work, denim, \$28,140.

Funk Bros. Hat & Cap Co., St. Louis, Mo., 109,000 ea. caps, field, cotton, khaki, \$18,875.

Premium Cap Co., St. Louis, Mo., 100,000 ea. caps, field, cotton, khaki, \$18,491.

Society Brand Hat Co., St. Louis, Mo., 100,000 ea. caps, field, cotton, khaki, \$18,688.

Adjustable Engineers Cap Co., St. Louis, Mo., 100,000 ea. caps, field, cotton, khaki, \$18,491.

Shapely Cap Co., St. Louis, Mo., 87,500 ea. caps, field, cotton, khaki, \$16,625.

Mound City Cap Mfg. Co., St. Louis, Mo., 87,500 ea. caps, field, cotton, khaki, \$16,625.

Correct Cap Co., St. Louis, Mo., 100,000 ea. caps, field, cotton, khaki, \$19,000.

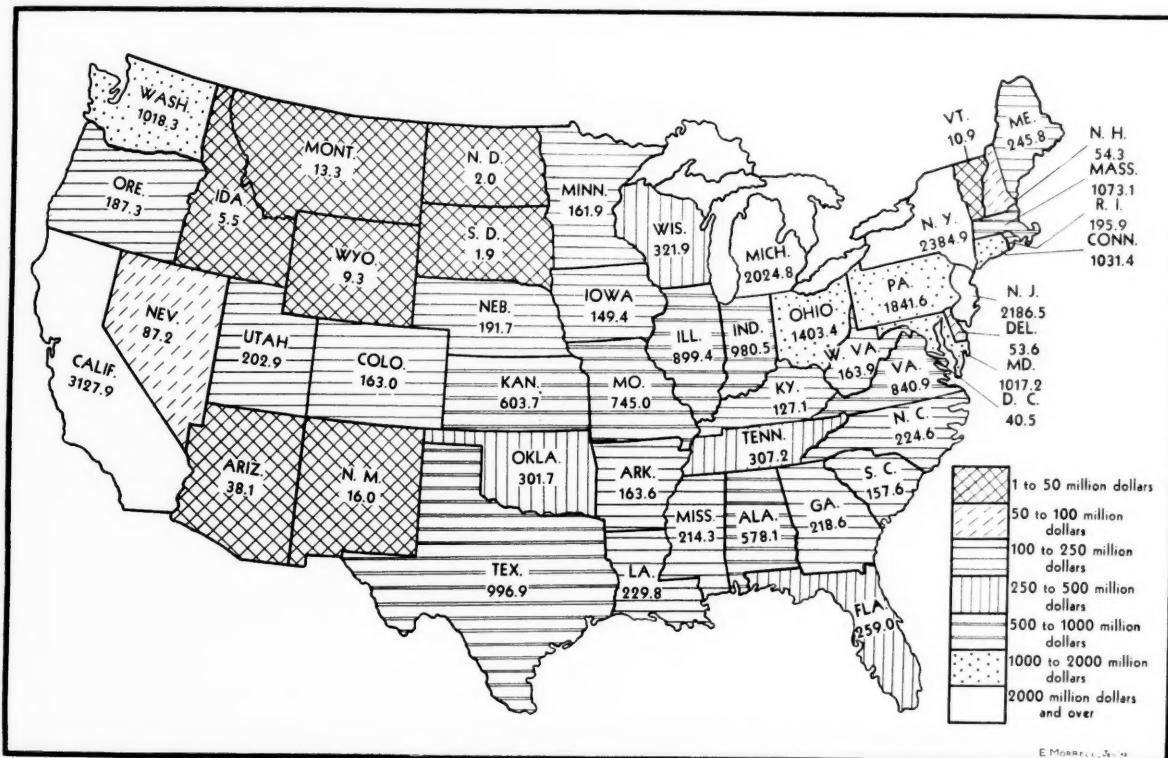
Empire Cap Mfg. Co., Kansas City, Mo., 80,000 ea. caps, field, cotton, khaki, \$15,200.

Air Corps

Butler Mfg. Co., Kansas City, Mo., portable warehouses, \$1,649,476.
 Butler Mfg. Co., Kansas City, Mo., hangars, portable, prefabricated, \$445,320.
 Curtiss-Wright Corporation, Airplane Division, St. Louis Plant, Robertson, Mo., parts for airplanes, \$176,064.

(Continued on page 38)

Defense contract awards of all Federal agencies through November was \$29,836,455,000. Of this, \$6,585,959,000 has gone to southern states. Totals for each state are shown on the map below in millions of dollars.



NORTH CAROLINA

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$205,722,000
Federal Security Agency	70,000
Federal Works Administration	4,170,000
U. S. Housing Administration	2,220,000
Public Buildings Administration	1,543,000
Works Progress Administration	7,005,000
Office of Education	1,882,000
National Youth Administration	2,031,000
Reconstruction Finance Corporation	5,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Hampton Shirt Co., Inc., New York, N. Y. (Mill: Kingston, N. C.) 50,000 shirts, flannel, O.D., \$24,500.	
Southern Furniture Co., Conover, N. C., 100,000 ea. plus, tent, shelter, \$1,120.	
Washington Mills Co., Winston-Salem, N. C. (Mill: Mayodan, N. C.), 88,000 prs. wool drawers, \$110,000.	
Washington Mills Co., Winston-Salem, N. C. (Mills: Washington Mills Co., Mayodan, N. C.), 112,000 pr. drawers, winter, \$110,880.	
Washington Mills Co., Winston-Salem, N. C. (Mill: Mayodan, N. C.), 100,000 undershirts, winter, \$100,400.	
Beacon Mfg. Co., New York, N. Y. (Mill: Swannanoa, N. C.), 15,000 blankets, wool, \$106,200.	
Manteo Boatbuilding Co., Manteo, N. C., boats, \$187,000.	
P. H. Hanes Knitting Co., Winston-Salem, N. C., 216,000 pr. drawers, wool, \$259,348.	
Ragan Knitting Co., Thomasville, N. C., 234,720 prs. socks, cotton, tan, \$32,532.	
P. H. Hanes Knitting Co., Winston-Salem, N. C., 216,000 undershirts, wool, \$259,615.	
Mt. Airy Knitting Co., Mt. Airy, N. C., 40,000 undershirts, wool, \$49,139.	
The Windsor Company, Windsor, Conn. (Mill: Cannon Mills Co., Kannapolis, N. C.), 412,000 sheets, cotton, bleached, \$480,392.	
J. P. Stevens & Co., Inc., (Springs Cotton Mills) New York, N. Y. (Mill: Sayles Biltmore Bleachery, Biltmore, N. C.), 38,000 sheets, cotton, bleached, \$43,586.	

OKLAHOMA

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$293,075,000
Civil Aeronautics Authority	549,000
Public Buildings Administration	465,000
Works Progress Administration	3,851,000
Office of Education	1,594,000
National Youth Administration	1,914,000
Reconstruction Finance Corporation	210,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Quartermaster Corps

Oklahoma Furniture Mfg. Co., Oklahoma City, Okla., 15,000 mattresses, cotton, \$80,798.	
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Corps of Engineers

Pacific Refrigeration Co., Los Angeles, Calif. (Plant: Tulsa, Okla.) quench tank refrigeration system, \$2,786.	
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SOUTH CAROLINA

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$132,708,000
Civil Aeronautics Authority	1,211,000
U. S. Housing Administration	3,660,000
Public Buildings Administration	1,059,000
Works Progress Administration	16,095,000
Office of Education	1,509,000
National Youth Administration	1,087,000
Reconstruction Finance Corporation	230,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Corps of Engineers

Merritt Dredging Co., Charleston, S. C., dredging entrance channel, Municipal Yacht Basin, Charleston, S. C., \$5,309.	
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Quartermaster Corps

Cameron Bedding & Mfg. Co., Cameron, S. C., 5,000 mattresses, cotton, \$27,000.	
Dixie Shirt Company, Inc., Spartanburg,	

S. C., 104,055 shirts, cotton, khaki, \$50,987.

Mt. Vernon Woodberry Mills, Inc., Baltimore, Md. (Mill: Columbia Mills, Columbia, S. C.), 25,000 yds. duck, cotton, grey, \$9,600.

Pacific Mills, New York, N. Y. (Mill: Lyman, S. C.), 150,000 sheets, cotton, bleached, \$172,050.

Southern Worsted Corp., Boston, Mass. (Mill: Paris, S. C.), 200,000 yds. cloth, serge, O. D., \$608,000.

TENNESSEE

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$296,732,000
Civil Aeronautics Authority	139,000
Federal Security Agency	115,000
Federal Works Administration	1,660,000
U. S. Housing Administration	775,000
Works Progress Administration	3,623,000
Office of Education	2,420,000
National Youth Administration	1,743,000
Reconstruction Finance Corporation	15,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Ordinance

Chattanooga Stamping & Enameling Co., Chattanooga, Tenn., mines, \$64,800.	
Winchester Mills, Inc., Winchester, Tenn., parachute silk, pyrotechnic, \$230,750.	

Corps of Engineers

Mente & Co., Inc., New Orleans, La. (American Finishing Co., Memphis, Tenn.) bags, sand, \$14,850.	
Wesco Paving Co., Chattanooga, Tenn. and Smith Engineering & Construction Co., Pensacola, Fla., rental of asphalt plants, \$157,002.	

Quartermaster Corps

Jamison-Anchor Bedding Co., Nashville, Tenn., 5,000 mattresses, cotton, \$26,865.	
General Shoe Corporation, Nashville, Tenn., 25,000 pr. service shoes, \$90,500.	
U. S. Bedding Co., Memphis, Tenn., 5,000 mattresses, cotton, \$27,000.	
Knoxville Awning, Tent and Tarpaulin Co., Inc., Knoxville, Tenn., 1,800 ea. tents, wall, \$13,500.	
National Rose Spring & Mattress Co., Memphis, Tenn., 5,000 mattresses, cotton, \$26,933.	
Dixie Mfg. Co., Inc., doing business as Waverly Garment Co., Columbia, Tenn. (Mill: Waverly, Tenn.) 50,000 shirts, flannel, O.D., \$24,500.	
Southern Mfg. Co., Nashville, Tenn., 100,000 shirts, flannel, O.D., \$49,000.	
Slumber Products, Memphis, Tenn., 12,000 mattresses, cotton, \$63,480.	
Southern Athletic Co., Inc., Knoxville, Tenn., 109,736 barrack bags, \$64,738.	
Standard Knitting Mills, Knoxville, Tenn., 216,000 pr. drawers, winter, \$201,928.	
Southern Silk Mills, Spring City, Tenn., 123,400 yds. mosquito netting, \$37,929.	
Kingsboro Silk Mills, Gloversville, N. Y. (Mill: Daisy, Tenn.), \$2,267 yds. mosquito netting, \$25,710.	
Standard Knitting Mills, Knoxville, Tenn., 168,000 undershirts, winter, \$167,143.	
Signal Knitting Mills, Chattanooga, Tenn. (Mills: Signal Knitting Co., Chattanooga, Tenn.; Hena Mills, Inc., Chattanooga, Tenn.), 74,000 undershirts, winter, \$75,103.	

TEXAS

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$959,830,000
Civil Aeronautics Authority	2,049,000
Federal Security Agency	109,000
Federal Works Administration	1,782,000
U. S. Housing Administration	2,792,000
Public Buildings Administration	3,997,000
Works Progress Administration	16,113,000
Office of Education	4,748,000
National Youth Administration	4,257,000
Reconstruction Finance Corporation	1,266,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Ordinance

Texas Washer Co., Houston, Tex., fin assemblies for shells, \$81,225.	
John E. Mitchell Co., Inc., Dallas, Texas, projectiles, \$187,500.	

Corps of Engineers

E. B. Sneed, Austin, Texas, construction of sewage treatment plant, Waco, Texas airfield, \$64,800.

Empire Electric Co., Ft. Worth, Texas, runway contact lighting system and day markers. Municipal Airport, Corpus Christi, Texas, \$21,912.

Engineering Contractors, Inc., San Antonio, Texas, construction of permanent heating system and steam plant at airplane repair dock, Duncan Field, San Antonio Air Depot, San Antonio, Texas, \$11,390.

Trinity Portland Cement Co., Dallas, Texas, portland cement, \$118,200.

Quartermaster Corps

Crawford-Austin Mfg. Company, Waco Tex., 65,000 cotton mattresses, \$314,462.	
Douglas Company, Waco, Texas, 65,000 cotton mattresses, \$314,207.	
Denison Mattress Factory, Denison, Texas, 20,000 mattresses, cotton, \$108,000.	
Abilene Construction Co., Abilene, Texas, renovation and alteration of existing (Old Elks) building, Abilene, Texas, \$18,700.	
The Hawk & Buck Company, Inc., Ft. Worth, Texas (Mill: Waco, Texas) 50,000 shirts, cotton, khaki, \$24,439.	
Taylor Bedding Mfg. Co., Taylor, Texas, 50,000 ea. cotton mattresses, \$284,073.	
Conro Mfg. Co. of Texas, Dallas, Texas, 94,320 pr. trousers, working denim, \$99,036.	
Clifton Mfg. Company, Waco, Texas, 91,448 barrack bags, \$53,954.	
Conro Mfg. Co. of Texas, Dallas, Texas, 118,656 barrack bags, \$70,007.	
The Schoellkopf Company, Dallas, Texas, 30,000 barrack bags, \$17,700.	
Brownsville Shipbuilding Corp., Brownsville, Texas, boats, \$374,000.	
Bauer-Smith Dredging Co., Port Lavaca, Texas, steel, diesel driven ferry boats, \$49,540.	

VIRGINIA

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$818,191,000
Federal Security Agency	1,290,000
Federal Works Administration	375,000
U. S. Housing Administration	7,758,000
Public Buildings Administration	3,634,000
Works Progress Administration	6,026,000
Office of Education	2,011,000
National Youth Administration	1,583,000
Reconstruction Finance Corporation	7,000

CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8

Ordinance

E. I. du Pont de Nemours & Co., Inc., Rayon Dept., Acetate Div., Wilmington, Del. (for mfr. at Waynesboro, Va.) acetate, \$3,300.	
Hercules Powder Co., Hopewell, Va., cotton linters, \$61,600.	

Chemical Warfare

Miller Mfg. Co., Inc., Richmond, Va., boxes for shells, \$49,471.	
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Corps of Engineers

Craig Bros., Norfolk, Va., drydocking and performing repair work on U. S. Survey Boat "Danora," Norfolk, Va., \$500.	
T. E. Ritter Co., Norfolk, Va., construction of ward room relocation, Langley Field, Va., \$40,818.	
Morgan Bros., Richmond, Va., sand bags, \$71,200.	

Quartermaster Corps

Virginia Braid Co., Charlottesville, Va., 348,000 yds. cord edge braid for caps, \$8,178.	
C. W. Hancock & Sons, Inc., Lynchburg, Virginia, construction of USO Recreation Center, Radford, Va., \$75,139.	
Craddock-Terry Shoe Corp., Lynchburg, Va., 27,000 pr. service shoes, \$97,400.	
Blue Buckle Overall Co., Inc., Lynchburg, Va., 30,000 barrack bags, \$17,700.	

WEST VIRGINIA

Value of Total Awards June 1940

Through November 1941

Army, Navy & Maritime Commission	\$145,816,000
U. S. Housing Administration	1,364,000
Works Progress Administration	13,162,000
Office of Education	1,964,000

(Continued on page 58)

PRIORITIES

January Lead Pool Unchanged at 15 Per Cent—The January lead pool will remain unchanged at 15 per cent of November production. Producers are required to set aside this amount for allocation, which is expected to aggregate 6,500 to 7,000 tons. Lead remaining in the pool after allocation is added to the Government stockpile. The lead pool has been fixed at 15 per cent for the past several months under the provision of General Preference Order M-38.

Airplane and Radio Materials Ratings Continued—Preference Rating orders granting priority in obtaining materials entering into the production of airplanes, airplane engines and equipment, electrical relays and solenoid assemblies, radio receiving, transmitting and directional equipment have been extended to January 31, 1942. In each case, the ratings are applicable only to materials to be used in filling defense orders.

A-1-g Rating for Industrial Lift Truck Materials—Producers of power-driven industrial lift trucks are granted an A-1-g rating in the acquisition of materials to be used in the manufacture of spare parts for these essential machines, in an amendment to Preference Rating Order P-40. The order originally covered only materials for the production of complete units. The benefit of the rating may now be applied to deliveries of material for the manufacture of electric storage batteries and gas-electric units, designed and manufactured solely for replacement purposes in maintaining and repairing existing trucks of the types covered by the order, and to repair parts designed and manufactured for use in the same way.

Fats and Oils Deliveries Restricted—Some 1800 different kinds of fats and oils are affected by an order issued by the OPM Priorities Division prohibiting delivery of these products to manufacturers or processors in excess of a 90 days' operating supply.

Operating supply is based on the manufacturer's rate of operations during the 30 days immediately preceding issuance of the order, or his rate during the corresponding month the year before, or the average of his monthly rate of operations during 1941, whichever of the three is the highest. The highest of the three is then multiplied by three to give the amount of a 90 days' operating supply permitted under the order. Operating supply applies to fats and oils in the aggregate and not to a separate 90-day supply of each known fat and oil.

Some of the best known of the oils and fats affected by the order are raw material lard (not as finally processed for home consumption), cotton seed oil, tung oil, linseed oil, soy bean oil, coconut oil, palm oil, olive oil, fish and mineral oils, fish liver oil, and castor oil.

Fats and oils are defined in the order as meaning "all of the raw, crude and refined fats and oils, their by-products and derivatives, and greases, except 'essential' oils, mineral oils, and butter."

A-3—Rating for Farm Equipment Materials—An A-3 preference rating is made available for materials necessary to produce machinery to turn out food supplies at the rate of 115 percent of the 1924-29 level. The program is related both to domestic needs and to foreign requirements under the lend-lease program. Preference Rating Order P-32 and P-33, under which ratings of B-1 and A-8, respectively, were assigned, are automatically revoked.

Vanadium Under Full Allocation—Vanadium, placed under a complete allocation system by General Preference Order M-23-a, which replaces M-23, provides for monthly requests for vanadium allotments and authorizes the Director of Priorities to make monthly allocations without regard to previous preference ratings. Consumers receiving less than 50 pounds per month need not file reports.

Manila Cordage Further Restricted—Drastic restrictions on the sale of Manila cordage were ordered in a further amendment to General Preference Order M-36 covering Manila fiber and cordage. The sale of Manila cordage to the mining industry is eliminated. Further manufacture of Class C cordage is prohibited. Stocks now on hand or in process of manufacture may be sold. Under the latest amendment, Manila cordage may be sold by processors and dealers only for the following categories of orders:

1. Defense orders accompanied by preference rating certificates (not including a Preference Rating Order) having a rating of A-1-j or better.

2. Commercial marine usages in vessels engaged in the carriage of cargo or passengers, or in towage, lightering or fishing for commercial fish markets or canneries, and usages for shipbuilding. (Boats used in taking out sportsmen for hire are excluded).

3. Oil wells and gas wells—for drilling cables only.

Sales of existing stocks have been further restricted. Previously such sale was permitted in lengths of 540 feet or less. Now it is limited to 200 feet or less, provided the rope has already been cut in such lengths.

Chlorine Subject to Full Allocation—All chlorine produced in the United States will be subject to direct allocation after February 1, 1942, in accordance with an amendment to General Preference Order M-19. Regardless of priority ratings, no producer of chlorine may accept orders after the 10th day of any month for delivery in the next calendar month without a specific direction from the Director of Priorities. No distributor may accept orders after the 5th day of any month for delivery in the following month without specific direction from the Director of Priorities. All producers are required to file with the Chemicals Branch of the Office of Production Management in Washington, on or before the 15th of each month, on Form PD-191, a schedule of deliveries to be made the following month. After February 1, 1942, no deliveries of chlorine may be made without specific au-

thorization from the Director of Priorities. All orders for chlorine must be accompanied by Form PD-190 properly executed.

Under the amended order, every producer is required to set aside each month 5% of his estimated monthly production of liquid chlorine. The producer is to make no commitments with respect to this chlorine reserve. However, subject to the general provisions of Priorities Regulation No. 1, the reserve chlorine may be sold and delivered if no express order for its disposition has been issued by the Director of Priorities by the 15th day of the month in which the reserve is set aside.

Government Takes Over All Tin—General Preference Order M-43 provides that:

1. All supplies of tin shall be subject to specific allocation by the Director of Priorities and the purposes for which tin is used shall also be specified.

2. No tin may be sold or delivered without specific permission of the Director of Priorities.

3. Future imports of tin may not be sold except to the Metals Reserve Company or other governmental agency.

4. Tin now afloat may not be sold except by special permission of the Director of Priorities.

The only exception to the order is that a distributor may deliver to his regular customers less than 5-ton lots of tin, subject to Priorities Regulation No. 1.

Inventory provisions of Regulation No. 1 will be invoked and no deliveries of tin or tin products will be made to fabricators who have ample stocks on hand.

Hog Bristles Reserved for Military Use—Hog bristles more than three inches in length are reserved for military requirements by general preference order M-51. The order prohibits the sale, delivery or transfer of title to bristles unless specifically authorized, provided that transactions involving bristles may be made if those engaged report to the Office of Production Management by the day following the transaction, the amount, origin, size, color, number of cases and identifying case numbers of any bristles so sold, delivered, or to which title has been transferred. Opening any cases of bristles also is prohibited unless it is necessary to prevent their deterioration and then the action and circumstances must be reported at once to OPM.

Report forms to be issued shortly by OPM will require each owner of bristles to report all bristles of all types in his possessions or to which he owns title. Bristles to be reported include those afloat, in transit, in warehouses or in the process of manufacture.

New Housing Localities Given Priority—New localities added to the Defense Housing Critical Areas List.

Alabama—Huntsville, Tuskegee,
Arkansas—Helena-West Helena, Pine Bluff.

Louisiana—Sterlington-Monroe-Bastrop.

Oklahoma—Chickasha, Muskogee-Choteau.

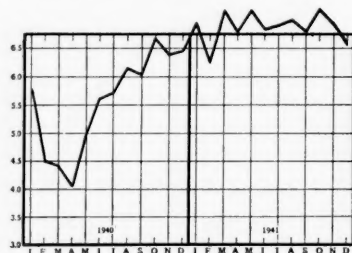
Texas—Corsicana, Mission, McAllen-Edinburg, Terrell, Uvalde, Waco.

The high priority ratings, available under the Defense Housing Plan, may now be applied to deliveries of specified building materials required to construct
(Continued on page 46)

Industrial Production Trends

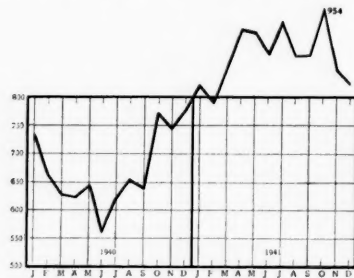
INDUSTRIAL production, on the 1935-1939=100 adjusted index shot up to 167 in November but preliminary estimates for December show a drop of three points to 164. However, this may be revised upward when final figures are complete. In November and December 1940 the figures were 134 and 138 respectively. Under the impact of war it is anticipated that the phenomenal rise of the past 18 months will be eclipsed during the ensuing year.

Steel production amounted to 6,969,-



STEEL INGOT PRODUCTION
(Millions short tons)

987 tons in November with a rate of capacity equal to 98.3%. When the accompanying chart was prepared, preliminary estimates indicated a decline during December to 6,554,000 tons, but at the time of going to press final figures indicate a production in December of 7,163,999 tons with capacity rated at 98.1%. This brings the total production for 1941 to 82,927,557 tons, a new record for the steel industry and about

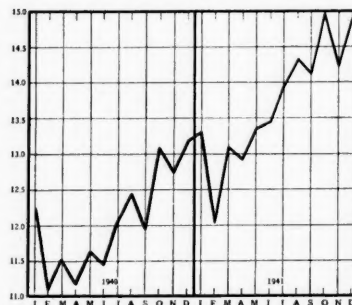


COTTON CONSUMPTION
(Thousands of bales)

12 million tons greater than the production of 1940. Before the close of 1942 it is believed that steel production will reach 100 million tons.

Cotton consumption in November totaled 849,733 bales while early returns for December indicate a further

slight decline to 825,000 bales. In spite of this decline during the last two months of the year the total amount of cotton consumed during 1941 exceeded 10,513,000 bales and the amount of cloth produced exceeded 12 billion yards. With the advent of war and the necessity of equipping a large Army and Navy it is reasonably safe to assume cotton consumption during 1942 will pass the 12 million bale mark.

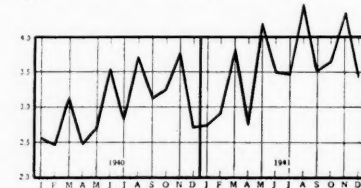


ELECTRIC POWER PRODUCTION
(Billions kilowatt hours)

Electric power production in November declined from October to 14,230,305 kw. hrs. This decline was partly brought about by a partial black-out in the southeastern states in order to conserve power due to drought. With the fall of heavy rain the black-out was lifted and early figures for December indicate production came close to 15 billion kw. hrs. With the completion of new plants and planning of others these all-time records will probably be shattered during 1942 when the industrial war effort is on an all-out basis. In spite of the apparent decline in production during November the daily production reached an all-time high for the fourth consecutive month with 521,256,000 kw. hrs. per day; December was higher still.

Carloadings in November totaled 4,318,000 while early returns for Decem-

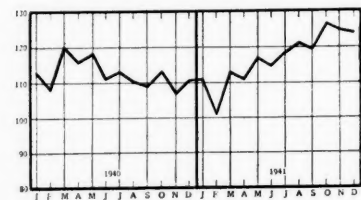
ber indicate the total was 3,415,000. The apparent decline in December was largely seasonal but was very far above the 2,720,000 total recorded for December 1940. Carloadings in the first quarter of 1942 are expected to be more than 8% above the corresponding period of



CARLOADINGS
(Millions)

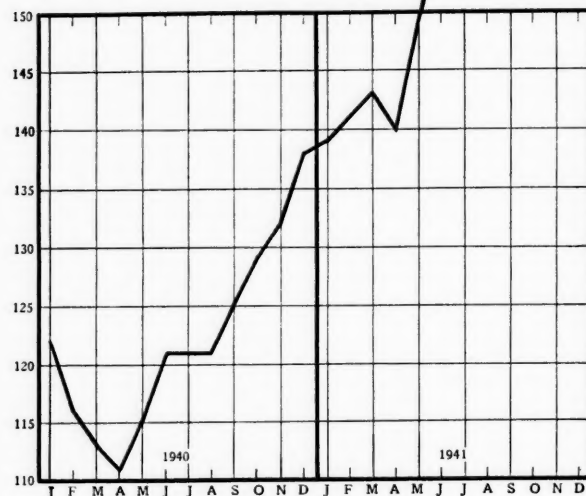
1941 with the largest increases occurring in the northwest, southwest, and Great Lakes regions, respectively.

Daily average crude oil production exceeded the four million barrel mark in October for the first time when the total output was 126,145,000 barrels. Estimated production for November and



CRUDE PETROLEUM PRODUCTION
(Millions of barrels)

December was 125 million and 124 million respectively, representing a slight decline that is expected to be entirely offset with the beginning of the new year. The gain in crude oil production in October outweighed an increase in crude runs to stills while exports of crude oil showed little change and the

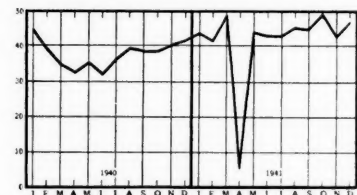


INDUSTRIAL PRODUCTION
(Index 1935-39=100)

net result was a smaller withdrawal from crude oil inventories in October than in September.

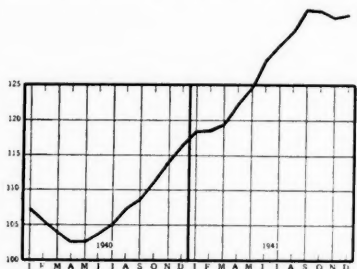
Bituminous coal production in November declined about 7 million tons to 42,865,000 tons from the October total. Preliminary returns for December however indicate a total for that month of 46,420,000 tons. January production is expected to go close to 50 million tons.

Factory employment dropped to 134.5 in November on the 1923-1925=100 adjusted index but rose slightly in December.



BITUMINOUS COAL PRODUCTION
(Millions of tons)

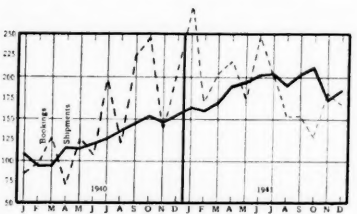
ber to 134.8 at which point it is likely to stay relatively stable for the next month or two, after which another rise is to be expected. Total civil non-agricultural employment in November of 40,693,000 was 3,165,000 greater than in November 1940 and 4,114,000 above the November 1929 level. The decline in November of 70,000 fewer factory workers than in October was largely seasonal and considerably less than the usual proportion, the only states show-



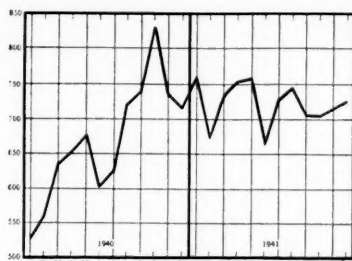
FACTORY EMPLOYMENT
(Adjusted index, 1923-25=100)

ing significant gains being Arkansas, Florida, and Louisiana.

Shipments of structural steel in November, amounting to 175,740 tons, were the lowest recorded since March, but bookings on the other hand, amounting to 181,130 tons, were nearly 60,000 tons above the October figure. Preliminary returns for December indicate that shipments aggregated 183,000 tons and bookings 170,000 tons, making the year's preliminary returns 2,247,547 tons and 2,316,457 tons for shipments and bookings, respectively, com-



STRUCTURAL STEEL
(Thousands of tons)

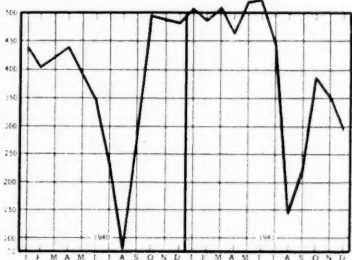


SOUTHERN PINE PRODUCTION
(Million board feet)

pared with 1,515,543 tons and 1,748,144 tons in 1940.

In the interest of national defense the publication of statistics concerning imports and exports has been discontinued.

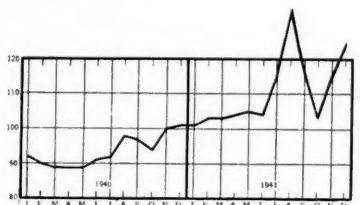
Southern pine production in November and December rose slightly from the October figure to total 715 million and



AUTOMOBILE FACTORY SALES
(Thousands)

725 million board feet, respectively. Production throughout 1941 has been relatively stable but figures are expected to soar with our entry into war. Defense construction will be accelerated, as evidenced by the recent Army purchase of 700,000,000 board feet of lumber in one week, which is about half the total purchased in the whole of 1941.

Factory sales of automobiles de-



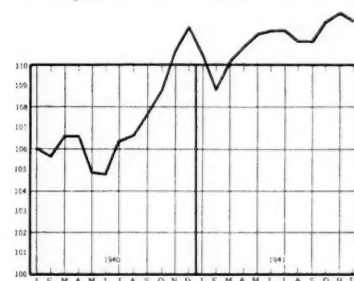
DEPARTMENT STORE SALES
(Adjusted index 1923-25=100)

clined slightly in November to 352,000 and again in December to 295,000. This decline is expected to continue in relation to the diminishing supply of new automobiles now in stock. When the present supply is gone the lack of production and impossibility of obtaining tires will force future purchasers entirely into the second-hand field.

Department store sales, which dropped to 104 in October, were back to 115 in November and 125 in December as recorded on the 1923-1925=100 adjusted index. This gain, which was purely seasonal, reflected consumer

ability to purchase, but dwindling supplies, particularly in the more expensive items, will show itself in the drop of the January figure.

The average price of U. S. Treasury bonds rose four points in November to 112.4 but the outbreak of hostilities caused a slight decline and early returns show the average for December was back to 112, at which point it may be expected to become relatively

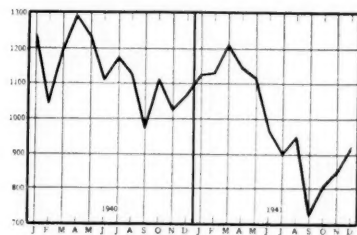


U. S. TREASURY BONDS
(Average price per \$100 bond)

stabilized.

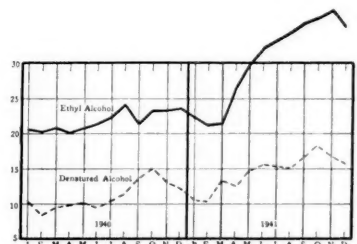
Commercial failures rose from a low of 809 in October to 842 in November and increased still further in December to 908. Aggregate liabilities jumped sharply in November to \$9,197,000 from \$7,333,000 in October. The rise in December however, when available, is not expected to be as proportionately great.

Alcohol production, which is now un-



COMMERCIAL FAILURES
(Total number)

der complete priority control, rose sharply in November when ethyl alcohol total 37,541,000 gallons though early returns for December indicate a decline to somewhat less than 36 million gallons. Denatured alcohol, on the other hand, which dropped to 16,965,000 gallons in November dropped less than a million gallons in December. These, together with other chemicals needed for war materials, will be greatly accelerated in their production during 1942.



ALCOHOL PRODUCTION
(Millions of gallons)

Southern Field Offices of the Division of Priorities

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ARKANSAS

Little Rock
Rector Office Building

FLORIDA

Jacksonville
George H. Andrews, Dist. Mgr.
Hildebrandt Bldg.

Tampa
Theodore L. Hausmann, Dist. Mgr.
Room 901, Wallace South Bldg.

GEORGIA

Atlanta
John B. Reeves, Dist. Mgr.
Federal Reserve Bank Bldg.

KENTUCKY

Louisville
James T. Howington, Dist. Mgr.
Todd Bldg., Fourth & Market Sts.

LOUISIANA

New Orleans
John A. Bechtold, Dist. Mgr.

MARYLAND

Baltimore
Theodore M. Chandlee, Dist. Mgr.
Baltimore Trust Bldg.

MISSOURI

Kansas City
Clifford H. Carr, Asst. Dist. Mgr.
Federal Reserve Bank Bldg.

St. Louis
Louis E. Crandall, Dist. Mgr.
411 Locust Street

NORTH CAROLINA

Charlotte
J. E. MacDougall, Dist. Mgr.
Liberty Life Bldg.

OKLAHOMA

Oklahoma City
C. F. Aurand, Dist. Mgr.
Federal Reserve Bank Bldg.

Tulsa
Alfred E. Ballin, Dist. Mgr.

TENNESSEE

Knoxville
Dyer Butterfield, Dist. Mgr.

Memphis
J. S. Bronson, Dist. Mgr.
Sterrick Bldg.

Nashville
George S. Gillen, Dist. Mgr.
1015 Stohlman Bldg.

TEXAS

Dallas
James B. Crockett, Dist. Mgr.
Wood & Alkard Streets

El Paso
Robert C. Stryker, Dist. Mgr.
Room 223, El Paso Natl. Bank Bldg.

Houston
George L. Noble, Jr., Dist. Mgr.
Federal Reserve Bank Bldg.

San Antonio
Carl L. Pool, Dist. Mgr.
415 W. French Place

VIRGINIA

Richmond
Rred P. Wilmer, Dist. Mgr.
Federal Reserve Bank Bldg.

War Expenditures Pass \$15,000,000,000 Mark

War expenditures in December amounted to \$1,997,000,000 including checks paid by the U. S. Treasury and the Reconstruction Finance Corporation for war purposes.

This brought total war expenditures for eighteen months—July, 1940 through December, 1941—to \$15,252,000,000. An increase in expenditures during December over November of \$465,000,000 was reported, compared with a decline of \$126,000,000 in November from October. This was virtually double the largest monthly increase previously reported.

The following table shows war expenditures by month, and indicates the change in dollars from the previous month, from July, 1940 through December, 1941:

WAR EXPENDITURES JULY, 1940-DECEMBER, 1941 (In millions of dollars)

Date	Expenditures	Change from Preceding Month
1940		
July	186	....
August	213	+27
September	234	+21
October	312	+78
November	391	+79
December	483	+92
1941		
January	589	+106
February	607	+18
March	797	+190
April	824	+27
May	904	+80
June	890	-14
July	1,021	+131
August	1,190	+169
September ...	1,424	+234
October	1,658	+234
November	1,532	-126
December	1,997	+465
	15,252	

Ship Construction Speeds Up

Ships being constructed under the Maritime Commission's augmented shipbuilding program went down the ways last month at the rate of one a day. Thirty vessels were on the December launching list.

A marked increase in the number of launchings is planned for January with 39 vessels scheduled to go down the ways. In February, the tentative schedule calls for the launching of 40 additional ships.

Of the 30 vessels launched last month, 25 are the new Liberty ships, four are general cargo vessels and one a tanker.

During December, the California Shipbuilding Corp., Los Angeles, Calif., launched seven Liberty ships; the Bethlehem-Fairfield Shipyard, Inc., Baltimore, Md., and the Oregon Shipbuilding Co., Portland, Ore., launched five Liberty ships; and the Houston Shipbuilding Co., Houston, Tex., the Richmond Shipbuilding Corp., Richmond, Calif., the North Carolina Shipbuilding Corp., Wilmington, N. C., and the Alabama Dry Dock and Shipbuilding Co., Mobile, Ala., had two Liberty ship launchings.

The Ingalls Shipbuilding Corp., Pascagoula, Miss., launched a cargo vessel; the Sun Shipbuilding and Dry Dock Co., Chester, Pa., launched two vessels, a tanker and a general cargo ship, and the Moore Dry Dock Co., San Francisco, launched two general cargo vessels.

Bomber Production Starts at Kansas City, Mo.

The first Army bomber assembled from parts fabricated by the automobile industry will roll from the production line of a new \$11,000,000 plant at Kansas City, Missouri, shortly after the first of the year, several months ahead of schedule.

Built and partly equipped by the Government, the plant will be managed by North American. Special jigs and tools were supplied by the company which has its main plant in Inglewood, California.

Sub-assemblies for the Kansas City plant will be made in the Fisher Body plants at Detroit, Michigan and Memphis, Tennessee. These parts will be shipped to Kansas City for final assembly. About 35 per cent of the parts, however, will be made from raw materials in the plant there.

Meanwhile, work is being speeded on other plants included in the program under construction at Tulsa, Oklahoma; Fort Worth, Texas; Omaha, Nebraska, and Willow Run, Michigan. Production is scheduled to begin in 1942.

Four-engined Consolidated B-24 bombers will be assembled in the Tulsa plant. Douglas will be in charge of

operation and Ford will furnish the parts. Ford also will make parts for the B-24's to be assembled at the Fort Worth plant under the management of Consolidated, and for the Ford plant at Willow Run.

Chrysler and Goodyear will supply parts for the Omaha plant where the Martin two-engine B-26 bombers will be assembled under the management of Glenn L. Martin of Baltimore, Md.

Synthetic Rubber Plant For Texas

Negotiations for the construction of a \$2,200,000 plant to produce chemicals needed in the manufacture of synthetic rubber was announced recently by the Monsanto Chemical Company. The plant to be constructed in the vicinity of Galveston County, Texas, will be built under a lease arrangement between Monsanto and the Defense Plant Corporation, an RFC subsidiary. On completion title will be retained by the Defense Plant Corporation.

The plant is being constructed at the request of the Rubber Reserve Company and the chemicals manufactured will be used in producing much needed synthetic rubber.

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RAILWAY

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FILLING, LAND RECLAMATION, CANALS, PORT WORKS
RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS

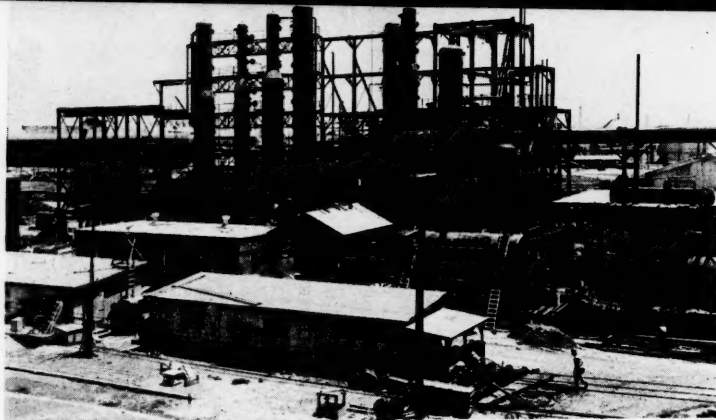


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JANUARY NINETEEN FORTY-TWO



The Baytown Ordnance Depot at Baytown, Texas, where toluol now is being produced by the Humble Oil Company as operator.

Authorized War Funds Total \$78,212,000,000

Authorizations for expenditures on America's War Program to date total \$74,440,000,000, including the Third Supplemental National Defense Act of 1942.

In addition, foreign transactions in the United States amount to \$3,772,000,000, of which \$3,747,000,000 is for war orders and \$25,000,000 for administrative expenses. The total authorized program for war expenditures in this country thus becomes \$78,212,000,000.

Obligations incurred under the program through the end of November amounted to \$47,726,000,000, against which \$13,299,000,000 was paid out. Obligations include contracts awarded and letters of intent to private industry, orders placed with Federal arsenals and navy yards, pay, subsistence and travel for the military and civilian agencies, and miscellaneous non-contractual items.

Broken down by Federal agency the financial program was allocated as follows: War Department, \$31,979,000,000; Navy Department, \$19,396,000,000; Maritime Commission, \$2,668,000,000; R.F.C. and subsidiaries, \$4,347,000,000, and other defense agencies, \$16,050,000,000. The last item includes \$12,985,000,000 for Defense Aid (Lend-Lease).

Obligations by agencies are as follows: War Department, \$21,205,000,000; Navy Department, \$15,102,000,000; Maritime Commission, \$1,644,000,000; R.F.C. and subsidiaries, \$3,450,000,000, and other agencies, \$6,325,000,000.

The following present a breakdown of financial program and obligations by agency and object:

TABLE I—U. S. WAR PROGRAM AND OBLIGATIONS, BY AGENCIES, FROM JUNE, 1940

Agency	Financial Program	
	As of Dec. 15, 1941 (In millions of dollars)	Obligations Nov. 30, 1941 (In millions of dollars)
Army	\$31,979	\$21,205
Navy	19,396	15,102
Maritime Com... ..	2,668	1,644
RFC and subsidiaries	4,347	3,450
Other defense agencies	16,050	6,325
Total	\$74,440	\$47,726

TABLE II—U. S. WAR PROGRAM AND OBLIGATIONS, BY OBJECTS, FROM JUNE, 1940

Objects	Financial Program	
	As of Dec. 15, 1941 (In millions of dollars)	Obligations Nov. 30, 1941 (In millions of dollars)
Ordnance	\$16,605	\$8,850
Airplanes, parts & accessories.. ..	13,196	10,025
Naval ships.....	8,846	7,545
Industrial facilities	8,163	5,805
Posts, depots and stations	5,881	4,135
Other munitions and supplies ..	5,622	3,522
Stockpiles and miscellaneous Lend-Lease exports	4,674	1,839
Pay, subsistence and travel	4,252	2,513
Merchant ships ..	3,323	2,112
Housing	942	430
Miscellaneous ..	2,936	950
Total	\$74,440	\$47,726

Federal Explosives Act

The declaration of a state of war makes effective the Federal Explosives Act of October 6, 1917, which prohibits the manufacture, distribution, storage, use or possession of explosives, or the ingredients of explosives, unless a license has been obtained from the Director of the Bureau of Mines. Exempted are explosives used by the Army and Navy.

A revised version of the 1917 Act has been passed by both Houses of Congress, and the measure is now in conference to iron out a minor difference. In its essentials, however, it is similar to the original law.

Personnel to act as licensing officers for the Bureau now are being selected, forms are being printed, and all other preparations are being made to put pro-

visions of the law into operation immediately.

The 1917 Act and the present bill are both designed to keep explosives or their ingredients, from getting into the hands of persons hostile or disloyal to the United States or who are judged not to be reliable or experienced in the use of explosives, and provide heavy penalties for violation of any of its provisions or of any rules or regulations promulgated thereunder by the Director of the Bureau of Mines with the approval of the Secretary of the Interior.

All users, except workmen who obtain their explosives from licensed foremen, must obtain a license under the terms of the law. As soon as application forms are available, an announcement to that effect will be made, and rules and regulations will be promulgated.

1942 Construction to Total \$11,250,000,000

New requirements brought suddenly into focus by the outbreak of war have caused estimates of the amount of money to be needed for all kinds of construction in this country during 1942 to be increased by nearly a billion dollars.

Preliminary estimates under the old defense program set the 1942 construction total at about \$10,400,000,000—a slight decrease from the \$11,000,000,000 expected to be spent during 1941. The new estimate is for approximately \$11,250,000,000, an all-time high, of which all will be for defense construction or construction essential to health and safety.

There will be large increases next year over this year in direct military construction and government-financed defense plant expansion, defense housing and community facilities. In every other major category there will be decreases of varying degrees.

Now in its eighteenth month, the defense construction program, measured in terms of funds available, amounts to nearly \$11,000,000,000. During next year the amount expected to be used for defense construction alone will be approximately \$8,650,000,000.

The value of defense work in place today is \$4,900,000,000, or about 44 per cent of the \$11,000,000,000 in defense funds already made available. Monthly expenditures now average about \$500,000,000 and for the first time are approximating the rate at which funds are becoming available.

Chromium Specifications Changed

All American manufacturers of ferrochromium have voluntarily agreed to changes in specifications which will permit the use of lower grade chrome ores and conservation of higher grades.

Present specifications of 68 to 69 per cent chromium, 4 to 6 per cent carbon and 1 to 2 per cent silicon will be changed to 60 to 63 per cent chromium, 6 to 8 per cent carbon and 4 to 6 per cent silicon, by the agreement.

The agreement affects the type of ferrochromium used in making engineering steels running up to about 3 per cent chromium and does not affect stainless steel and heat resistant alloy steels in which a larger amount of chromium is used.

U. S. Steel Corporation Production Sets All- Time Record

In spite of some loss of production resulting from shortages of scrap and from strikes and work stoppages in the coal mines and steel mills, production of the U. S. Steel Corporation during the past year established an all-time high record, approximately 29,000,000 tons of steel ingots having been produced, as compared with approximately 23,000,000 tons in 1940. A large part of this production went into defense. Work is now under way in the erection of new facilities by various subsidiaries to increase their steel-making and finishing capacities as a part of the Government's steel expansion program.

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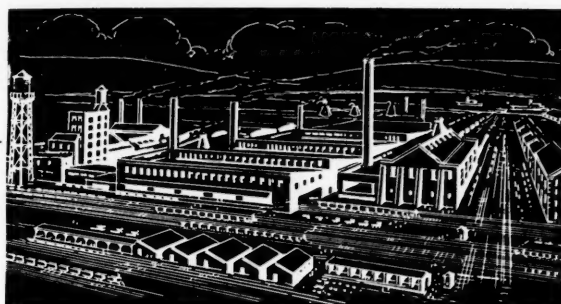
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Priorities

(Continued from page 39)

dwellings for workers engaged in war industries in those places.

All Toluene Subject to Allocation—All toluene in the United States will be subject to allocation beginning February 1, 1942, in accordance with the terms of an amendment to General Preference Order M-34. The order will apply to stocks on hand as well as to toluene produced after that date.

On or before the 15th of each month, every producer of toluene is required to file with the Chemicals Branch of the Office of Production Management his estimated production and scheduled deliveries of commercial grade toluene for the following month. No deliveries may be made after February 1 without authorization from the Director of Priorities, except that deliveries may be made according to the schedule as filed if no word to the contrary is received from the Director of Priorities before the 25th of the month before which the scheduled deliveries are to be made.

Beginning February 1, 1942, at least 70 per cent of the total production of all producers of toluene must be of nitration grade, meeting the requirements of Grade A in United States Army specifications. Deliveries of nitration grade toluene are to be made only in accordance with specific authorization from the Director of Priorities.

Assistance for Mine Operators—Small foundries and machine shops in areas where mining operations are carried on, as well as the mines themselves, will benefit by an amendment to Preference Rating Order P-56 which facilitates the acquisition of repair, maintenance and operating supplies by mines. The amendment assigns an extendible rating of A-3 to the acquisition of new mining machinery, and of repair parts, by a mine operator. Before applying the breakdown ratings, a mine operator must make application to the Director of Priorities. The same is true of the use of the A-3 rating.

Steel Plates Put Under Full Allocation—Complete allocation of steel plates was ordered in General Allocation Order No. 1. Producers are required to file with the Iron and Steel Branch, OPM, by the 15th of each month a schedule of production and shipments for the following month, together with a statement of unfilled orders for the period. They then will receive an allocation order from the Director of Priorities, making any changes that are deemed advisable.

Ethyl Alcohol Control Extended Indefinitely—General Preference Order M-30, which expired November 30, has been extended indefinitely. This order placed ethyl alcohol and acetic acid, acetic anhydride, acetone, ethyl ether, ethyl acetate, butyl alcohol, butyl acetate, isopropyl alcohol and isopropyl acetate under priority control.

Resistance Welding Electrodes Given A-1-c Rating—A preference rating of A-1-c has been assigned to orders for materials entering into the production of resistance welding electrodes. Producers of resistance welding electrodes

who wish to obtain priority assistance must first file an application with the Priorities Division on Form PD-82 and must receive specific authorization for use of the rating. Monthly reports of all applications of the preference rating are required on Form PD-81 or PD-81a.

A-10 Rating for Bakers—Interpretation No. 3 of Preference Rating Order P-22, establishes the right of all producers of bakery goods, whether or not these goods are distributed to wholesale or retail trade, to make use of the A-10 rating which the order assigns to the acquisition of repair, maintenance and operating supplies.

A-3 Rating for Marine Paint Makers—Manufacturers of marine paints have been accorded preference rating A-3 to obtain necessary raw materials.

To qualify for use of a preference rating under Order P-65, a producer must supply to the Chemicals Section of the Priorities Division, on Form PD-82, information as to his volume of production, inventory, and anticipated needs for the specified scarce materials covered by the order, by three-month periods.

Copper Restrictions Eased—Manufacturers of copper and copper alloy articles may use, to a limited extent, inventories of partially fabricated metal between now and March 31, 1942. Restrictions were to have gone into effect January 1, 1942.

Restrictions are (1) that the material was on hand as of December 1, 1941; (2) that the metal was in a form or alloy that could not be used in the manufacture of any item not on List A of the order; (3) that no additional copper be required to complete the item; (4) that the aggregate metal used does not exceed twice the amount permitted between October 15 and December 31, 1941, and (5) that by December 20, 1941, each manufacturer files with the OPM Form PD-189, establishing the facts in his case, setting forth inventories and other particulars.

A-8 Rating for Industrial Explosives Makers—Manufacturers of industrial explosives have been granted an A-8 rating in acquiring the materials necessary for their production and packaging in Preference Rating Order P-86, which will be made available to known efficient producers, following their application, for specific quantities of materials. Producers must apply for the assistance provided by the order on Form PD-82, addressed in triplicate to the Chemicals Branch, OPM.

Industrial explosives, as defined in the order, include: Liquid nitro glycerine, blasting gelatin, all types of dynamite, such as nitro glycerine dynamites, ammonia dynamites, and non-nitro glycerine dynamites, and all types of black powder, and necessary blasting accessories, such as ordinary blasting caps, electric blasting caps, safety and detonation fuses, blasting machines and rheostats.

A-10 Rating for Insecticide Manufacturers—Manufacturers of insecticides, germicides and fungicides are granted priority in obtaining scarce materials by Preference Rating Order P-87.

Before becoming eligible for priority assistance, a manufacturer must execute an acceptance of the order and furnish information to the Priorities Divi-

sion on Form PD-82, including his estimated materials requirements for the quarter beginning January 1, 1942. Use of a priority rating of A-10 will then be assigned for specified quantities of materials to be obtained during a three-month period by each individual manufacturer.

Permission Required for Utilities Expansion—Public utilities are forbidden to undertake any substantial expansion of property or equipment without express permission from OPM by amendments to Preference Rating Order P-46.

The order as amended applies to all producers engaged in supplying electric power, gas, water, public sanitation services, or central steam heating, regardless of whether or not they have applied for priority assistance by executing an acceptance of the order. It applies to publicly owned as well as private utility companies, and will cover Rural Electrification Administration cooperatives.

Rubber for Fire Hose Permitted—Processing of rubber for the manufacture of fire hose and other fire extinguishing apparatus will be permitted under an amendment to the order sharply restricting rubber consumption and temporarily prohibiting most sales of new automobile tires. The exemption from terms of the order, however, applies only to production of fire fighting equipment at the November, 1941, rate, pending a further survey of the situation.

Burlap Control—An amendment to the recent burlap conservation order (M-47) explains how burlap importers and importing bag manufacturers shall dispose of burlap which the original order requires them to set aside. The original order specified that two-thirds of the receipts of each cargo be set aside and not be disposed of except as expressly directed by the OPM.

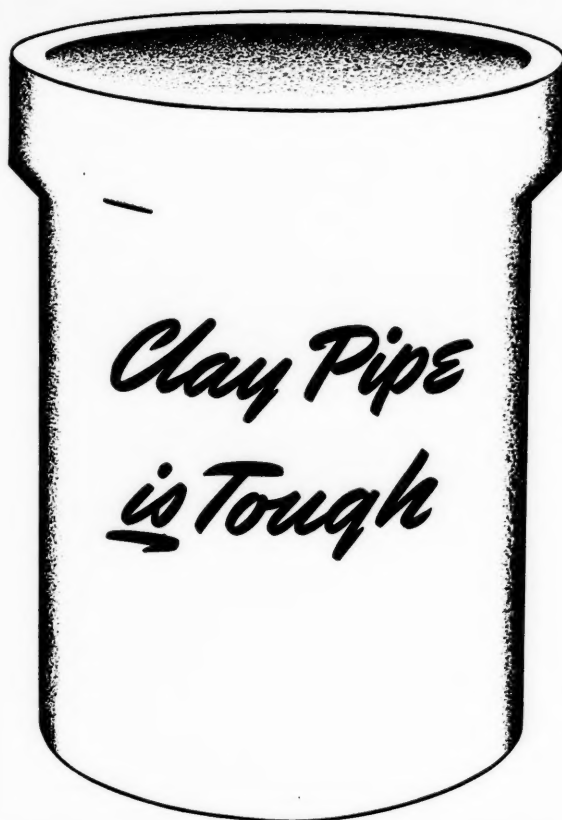
The amendment provides that such burlap be disposed of in the following manner:

1. To fill any order bearing a rating of A-1-j or higher.
2. To fill any order for burlap to be used for sandbags or camouflage cloth placed by the Army or the Navy.
3. To fill any order by the Defense Supplies Corporation or other affiliate of the Reconstruction Finance Corporation.
4. To fill any order placed by a non-importing bag manufacturer to fill orders for the Army and Navy or for orders bearing a rating of A-1-j or higher.

Additional time is granted for filing form PD-186 on which quota figures provided for in the original order are based. Form PD-188 on which monthly reports are to be filed, will be available around February 1. It should be filed with OPM by February 15 and not later than the middle of each succeeding month.

A-3 Rating for Railroad Equipment Producers Continued—Producers of railroad equipment who have been operating under Preference Rating Orders P-8, P-20 and P-21, will so continue during the coming three months. Preference Rating Order P-8 covers material and equipment entering into the construction of freight cars for railroad, industrial and mining use.

(Continued on page 55)



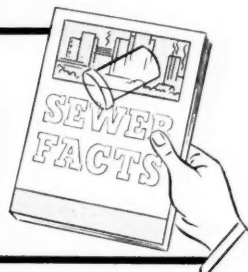
CLAY PIPE IS THE LOGICAL MATERIAL FOR ALL-OUT DEFENSE PROJECTS

The engineers who prepare the plans and write the specifications for the Army Camps, the Naval Bases and the great industrial plants don't take chances with materials that can't take it. That's why most specifications read "SALT GLAZED VITRIFIED CLAY PIPE, for all sewage and drainage lines and culverts."

Clay pipe plants are strategically located throughout the South and are ready to serve you whether you are planning to make a house connection or lay out an entire city sewer system. And priorities and shortages don't hit our basic raw material—clay. A letter or a phone call will put our Engineering Research Department at your disposal.

52 PAGES OF HELPFUL ENGINEERING DATA

Send for your copy of SEWER FACTS. It contains 52 pages of factual information, charts and tables. Also available are FIRE CLAY FLUE LINING and HIGH-WAY DRAINAGE, which contain engineering information on these subjects.



SOUTHERN CLAY PIPE

Produced by 15 Southern Plants

FIRST NATIONAL BANK BLDG.

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CREOSOTED

Piling, Poles, Lumber, Cross Arms,
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Also Wolmanized Lumber

Decay and Termite Proof—Can Be Painted

Docks for Ocean Vessels



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New Orleans, La.

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Plants at: New Orleans; Winnfield, La.; Louisville, Miss.;
Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.



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CHECK BOOK

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REDUCE PROFIT LEAKS

GUIDES you in making a complete check of your plant from roof to basement . . . tells where to look for waste in power production and in building maintenance . . . how to stop this waste. This book should be on the desk of every factory executive. It is yours for the asking. Write Dept. 61 for your copy today.

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ASBESTOS-CEMENT CORRUGATED SIDING AND ROOFING
INDUSTRIAL FLOORING **BUILDING INSULATION**
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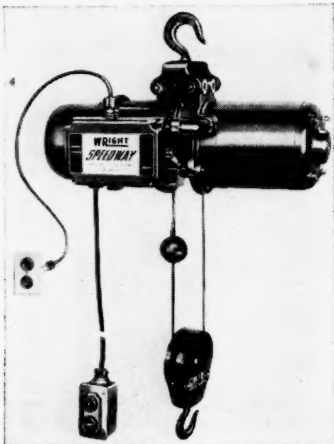
These money-saving products are readily available through a nationwide service and distribution organization. Its experienced personnel will assist you in solving your maintenance problems. A nearby representative will call at your request.

THE PHILIP CAREY MANUFACTURING COMPANY
Dependable Products Since 1873

LOCKLAND . . . CINCINNATI, OHIO
In Canada: The Philip Carey Company, Ltd. - Office and Factory: Lennoxville, P. Q.

Wire Rope Electric Hoist

The Wright Manufacturing Division of the American Chain and Cable Company, Inc., Bridgeport, Conn., announces the "Speedway," a new light weight compact wire rope electric hoist as an addition to the company's present line. The new model may be obtained in capacities from



"Speedway" Wire Rope Electric Hoist

250 up to 1,000 pounds. Outstanding features are portability, flexibility and accessibility, with push button control, weatherproof, dustproof, preformed hoisting cable on drum winding, eliminating slack chain fouling loads, safety limit switches, safety load blocks, etc. It is furnished for lug, hook or trolley suspension.

IF FLOORS MUST BE CLEAN, use MAPLE

Maple looks clean, is clean, and mere brushing keeps it clean, when properly finished. That's why it's the preferred flooring in food and similar plants from coast to coast.

It's so compact and smooth that dirt doesn't stick. Most abrasive wear doesn't alter Hard Maple's smoothness—creates no dust—because the grain is so tight, the fiber so tough. And because it wears so slowly (and is warm, dry, comfortable, traffic-fast) heaviest-duty

New Methods and Equipment

Plastic Tubing To Replace Metal

A new thermoplastic whose wide range and remarkable characteristics enable it to relieve some of the immediate production difficulties due to metal shortages is being fabricated by Western Felt Works, Acadia Synthetic Products Division, 4115 Ogden Avenue, Chicago, under license by the Dow Chemical Company, producers of Saran, which is the name of the new plastic. Principal characteristics of this plastic are its toughness and high resistance to moisture, brine, solvents, acids, and alkalis. Under fatigue tests, Saran tubing was recently flexed 2,500,000 times through a 15-degree arc, 1,750 times per minute, without failure. Saran tubing will be fabricated in a wide range of sizes and thicknesses, ranging from 1/8-inch to 3/8-inch o.d., and can be joined by standard flare-type or compression fittings. In addition to tubing, Acadia Synthetic Products will fabricate Saran in sheets 1/2-inch to 1/2-inch, and in compression molded parts.



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Get full facts on floors before you build or remodel. Ask your architect about MFMA Northern Hard Maple, in strips or blocks. See Sweet's, Sec. 11/82.

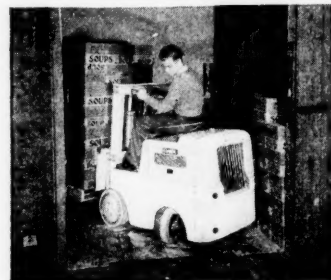
MAPLE FLOORING MANUFACTURERS ASSOCIATION

1797 McCormick Building, Chicago, Ill.

Floor with **MFMA** Maple
(NORTHERN HARD)

Clark Truck With Powerful Motor

To meet a demand for an industrial truck of light weight, compact, and equipped to lift, carry and tier loads weighing up to one ton, while operating in congested areas, in limited capacity elevators, in transport trucks and freight cars, upramps etc., the Clark Tractor Division of Clark Equipment Company, Battle Creek, Mich., announces a sturdy,



The "Clipper" Industrial Truck

low priced, compact, fork typed truck incorporating all desirable features in modern truck design. The new truck is called the "Clipper" and is offered in six models, capacities, 1,000, 1,300, and 2,000 pounds with standard finger-lifting heights of 60 to 108 inches. Other special heights are optional. It is gas-powered for 24-hour continuous service, with an economical, four cylinder, industrial truck engine, front-wheel drive, rear-wheel steer and hydraulic lift.

50-Ton Porter Diesel Electric Locomotive

Powered with two Cummins Diesel engines, each developing 150-horsepower, with a tractive force of 30,000 pounds at 30 per cent adhesion, a new 50-ton Diesel electric locomotive for general switching use has been announced by the H. K. Porter Company, Inc., Pittsburgh, Pa. Overall size of the locomotive is 12 feet high by 9 feet 8 inches wide by 29 feet 8 inches long over bumpers. It differs from the standard line of Porter Diesel

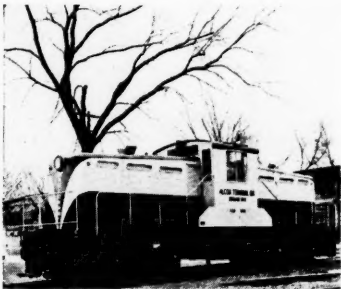


50-Ton Diesel Electric Locomotive for General Switching Use

electric in the matter of driving the second axle of each truck. Instead of the standard forged steel side rods, each truck is driven by a heavy duty chain and closed in oil. Thus in this design, intended for use where extreme clearances and sharp curves are encountered, the overhang of side rods is eliminated. Main frames are constructed of heavy steel plates for extreme strength, welded together with slab steel bumpers, and strongly braced lengthwise and crosswise. Radiators, engines and generators are mounted on heavy steel bed plate so designed that the entire unit with bed plate may be easily removed.

Whitcomb Diesel Electric Locomotive

Adding a new unit to their line of internal combustion locomotives, The Whitcomb Locomotive Company, Rochelle, Ill., announce an 80-ton Diesel electric locomotive powered with two Buda Diesel engines, each developing 325 horsepower and providing ample power to insure snappy performance in switching and spotting cars, as well as road work at speeds up to 40 miles per hour. Weight of the unit in working order is 160,000 pounds and the normal tractive effort is 40,000 pounds at 25 per cent adhesion. With the use of sand, the locomotive is capable of exerting 53,330 pounds tractive force.



A unique feature of the design is the arrangement of the power plant assemblies. Each engine-generator unit, including radiator, air compressor, and blower, is mounted on a common sub-base mounted on the locomotive frame. Instead of the usual arrangement with the radiator at the front end, the assembly has been turned around placing the radiator at the rear near the cab. Adjustable shutters on each side of the hood lets air into the radiators for maintaining even water temperatures in both engines. The arrangement has the further advantage of giving easy accessibility to the generators for inspection, while the complete sub-base assembly can be easily removed through a hatch in the top of the hood.

McDonnell Snap Action Valve

The McDonnell No. 129 snap action safety relief valve for larger hot water heating boilers has been announced by McDonnell & Miller, Chicago, augmenting the company's No. 29 series of snap action safety valves. The new size is designed to take care of boilers with gross B.t.u. output up to 350,000 per hour. Attention is called by the manufacturer to the flexible, leak proof bellows, which takes the place of the usual diaphragm, and the stainless steel metal-to-metal valve which replaces the usual disc. An incidental advantage of the snap action mechanism is the ease of testing operation.

Blackout Shades

Sensing the need for blackout material that will permit the factory to retain the advantage of daylight through large areas of glass, the Hough Shade Corporation of Jamesville, Wis., is offering a new blackout shade treated with fire-resistant material. These shades have roll-up equipment so they may be rolled up to take advantage of all natural daylight. They also protect workers from sun glare and heat, as well as delicate machinery and products from flying glass and fragments.

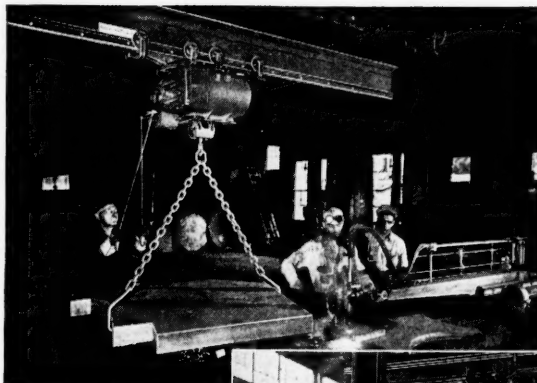
Now PRODUCTION Doubled-Trebled

NEVER before in the history of this great country of ours has the demand on industry been so great. It is production—faster, faster, faster! And faster production means systematic production. All work must move along easily, quickly, and efficiently.

American MonoRail Equipment increases and helps speed up production. It also reduces handling costs. It relieves men from lifting and carrying, and enables them to give full time to production. American MonoRail Equipment keeps materials and products on scheduled routes without congestion, delay, and damage in transit.

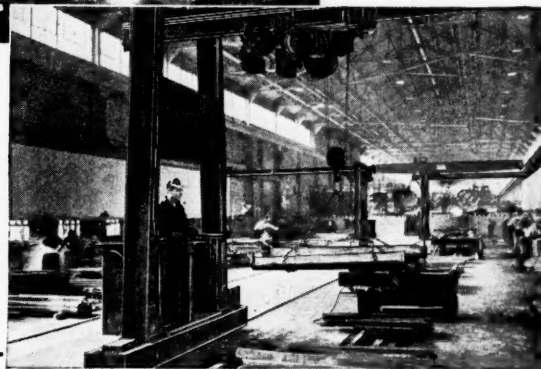
Standard parts are assembled into complete systems to meet the special requirements of the particular job. Supplied for manual, electric, or automatic operation. No job too small, none too large. No interruption to your production during installation. Let an American MonoRail Engineer show you how to "open the production throttle" in your plant.

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Free moving crane transfers heavy loads by easy hand operation.

Gantry moves billets to snaggers by power operation from central control.



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The complete facilities of our engineering staff are at the disposal of any company—their architects or engineers—planning to expand or construct new buildings. Through long experience, we are able to cooperate effectively in planning right heights, proper sizes and placement of structural members, and in other ways which result in buildings being designed to fit the needs of the user. This service is yours for the asking.

Industrial News

Worthington Elects John M. Franklin Director

John M. Franklin, President of International Mercantile Marine Company, and President of United States Lines Company, has been elected to the board of directors of the Worthington Pump and Machinery Corporation, Harrison, N. J. He is also a director of Pan-American Airways, Manufacturers Trust Company, American Merchant Marine Institute, Northern Insurance Company of New York, and a trustee of Atlantic Mutual Insurance Company. Born in Baltimore County, Maryland, 45 years ago, Mr. Franklin was educated at Middlesex and Harvard University. During the last World War, he served as Captain overseas in the American Army Tank Corps, and received the Military Cross for gallantry in action.

Jones & Laughlin Announce Changes in District Sales Offices

Changes involving its district sales offices in New York City, Washington, D. C., Chicago, Ill., Memphis, Tenn., and the creation of a new district office in Tulsa, Okla., is announced by the Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

John B. DeWolf has been appointed district sales manager in Washington. He joined Jones & Laughlin in 1938, serving two years as district sales manager in Philadelphia, and since 1940 as district sales manager in New York.

S. A. Fuller has been appointed district sales manager in New York. He is a graduate of Dartmouth College and since 1938 has served as district sales manager in Chicago. Prior to that, he had been district sales manager in Boston from 1929 to 1938.

Ernest W. Harwell, district sales manager at Memphis since 1914, has been appointed district sales manager in Chicago. He is a graduate of the Georgia School of Technology and has been with Jones & Laughlin since 1929.

Serving as assistant district sales manager in Memphis, Tenn., since 1934, E. E. Hoehle has been appointed district sales manager at Memphis. Mr. Hoehle started with the

Company in 1912 in the St. Louis district sales office.

R. J. Woods, Jr. has been appointed district sales manager of the newly created district sales office at Tulsa, Okla., having served as sales engineer in the Memphis district office since 1935. He was graduated from Vanderbilt University in 1928, and prior to his connection with the J & L Memphis office, he served as sales engineer with Wilson Weesner Wilkinson Company in Nashville and Knoxville, Tenn., and Atlanta, Ga.

Virginian Railway Appointments

Recent appointments announced by The Virginian Railway Company, Norfolk, Va., H. C. Mitchell, Traffic Manager, include the following, effective January 1: A. F. Schaffert, Assistant Freight Traffic Manager, Rates and Divisions; J. S. Branch, General Freight and Passenger Agent; J. F. Smith, General Freight Agent, Rates and Divisions, vice A. F. Schaffert, promoted, the position of Assistant General Freight Agent being abolished; A. E. Suter appointed Commercial Agent, Chicago, Ill., vice S. C. Forman, retired. R. A. Yelton is General Western Agent at Chicago. H. M. Rand was appointed Commercial Agent at Roanoke, Va., vice A. E. Suter promoted. W. P. Ayers being the General Agent at Roanoke; P. A. Doran appointed Traveling Freight Agent, Norfolk, vice H. M. Rand promoted. E. W. Barnes, Commercial Agent; L. W. Woody, Assistant General Passenger Agent, Norfolk, Va., retired December 31 after more than thirty years' service with the Company, and S. C. Forman, Commercial Agent at Chicago, also retired after long service.

Baltimore and Ohio Appoints New Director

At a meeting of the board of directors of the Baltimore and Ohio Railroad Company, held in New York City December 17, Richard R. Deupree, president of Procter & Gamble, was elected a member of the board. Mr. Deupree takes the place of John J. Cornwell, whose resignation from the board was accepted at the same meeting. Mr. Cornwell, a former governor of West Virginia, has been a director of the B & O since 1921 and its

general counsel since 1922. He will continue as general counsel. Mr. Deupree became president of Procter & Gamble in 1930, at the age of 45 years. In addition to heading Procter & Gamble, he is president of the Buckeye Cotton Oil Company and of the Procter & Gamble Distributing Company; chairman of the board of Hewitt Soap Company, Inc., and of Thomas Headley & Company, Ltd.

International Heating and Ventilating Exposition

Adjustments which defense industries must make immediately under the new war status are expected to be speeded up through contacts and conferences at the Seventh International Heating and Ventilating Exposition, to be held at Commercial Museum, Philadelphia, Pa., January 26 to 30. The forthcoming Exposition, which has been planned for more than a year, as a normal presentation in the biennial sequence of heating and ventilating expositions, is declared to have taken on increasing importance recently with many exhibitors because of the growing stress of defense preparations. A timely and stimulating program, organized by the American Society of Heating and Ventilating Engineers, under whose sponsorship the Exposition is held, is expected to draw a record breaking attendance for the Society's 48th annual meeting, January 25-29. As in all previous heating and ventilating expositions, the forthcoming one is under the management of the International Exposition Company, Charles E. Roth, Manager, Grand Central Palace, New York City.

Flexible Steel Lacing Company Appoints Sales Representative

John P. Ramsey has been appointed factory sales representative for New York and the New England States according to a recent announcement by the Flexible Steel Lacing Company of Chicago. This territory was formerly covered for the Flexible Steel Lacing Company by H. Irwin Reinhorn, who is now with the Ton-Tex Corporation of New York City. An alumnus of Grinnell College, class of 1923, Mr. Ramsey for the past eight years has represented the Lannon Manufacturing Company of Tullahoma, Tenn., in New York and the New England States and is well known to the trade in this area. His home is in New Canaan, Conn.



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6,000 SQ. FT. WHITE CORRUGATED WIRE
GLASS SKYLIGHT

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ORIGINAL SOLID CORRUGATED
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LARGE STOCK FOR IMMEDIATE SHIPMENT

STRUCTURAL STEEL for BUILDINGS and BRIDGES

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Carolina Steel and Iron Company

The Largest Steel Fabricators in the Carolinas
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Elevated Tanks	Bins
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Process Tanks	Dredge Pipe and Accessories
Butane—Propane Tanks	Welded Pipe
Standpipes	Riveted Pipe
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*General Steel Plate Construction
designed for your requirements.*

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Another Cole Product

Our various fabricated COLE steel products also include Smokestacks and Standpipes and you'll find them to stack up to your needs in every way. These stacks made to specification from your designs or ours, which our Engineering Department will gladly furnish. Put your Stack—also stack of problems—up to us.

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R.D. COLE MFG.CO.
NEWNAN — GEORGIA

Trade Literature

FRICK REFRIGERATION

Booklet—Attractive 4-page publication carrying greetings of The Frick Company and illustrating and describing various Frick refrigeration installations, including a number of Southern projects, namely—Dr. Pepper Bottling Company plant at Greensboro, N. C.; refrigerated trucks that hold zero temperature used for hauling frozen foods from Bridgeton, N. J. to Florida and other distant points, the trucks being owned and operated by the Cumberland Automobile & Truck Co., Bridgeton, N. J.; Lakeview Dairy, near Richmond, Va.; Cabell Luck and Beattie Luck, proprietors; new hospital of the Medical Hospital of Virginia at Richmond.

Frick Company, Inc., Waynesboro, Pa.

RAIL CLAMPS

Bulletin No. 114—illustrating and describing rail clamps for movable structures, important for the safety of bridges, towers and other movable structures.

Robins Conveying Belt Company, Passaic, N. J.

EQUIPMENT FOR PROCESS INDUSTRIES

Catalog 765—illustrating and describing Jeffrey equipment for the process industries. The Jeffrey Manufacturing Company, Columbus, Ohio.

PROPERTIES OF CARBON AND ALLOY STEEL TUBING

Technical Bulletin 6-D—"Properties of Carbon and Alloy Steel Tubing for High Temperature—High Pressure Service"; bulletin is a revision and enlargement of the previous edition and includes new data on physical properties and behavior in service of the B & W Croloys and other materials, resulting from the Company's research during the past three years; new sections have been added on the B & W Seamless-Tube manufacturing process, rupture testing, maximum allowable working stresses, steel for sub-zero application, effect of hydrogen, and air-hardening properties; publication also includes a fully illustrated section on common causes of tube failure.

The Babcock & Wilcox Tube Company, Beaver Falls, Pa.

GRINDING MACHINES

Booklet—commemorating the production of the 25,000th Norton grinding machine, which recently came off the assembly line, the Norton Company has issued an attractively illustrated booklet as a salute to Mr. Charles H. Norton, Plainville, Conn., the "father of cylindrical grinding" and inventor of the Norton grinding machine introduced in 1900. Mr. Norton was born in Plainville November 29, 1851 and now resides there. Norton grinding machines are manufactured by the machine division of The Norton Company, Worcester, Mass.

ATMOSPHERES FOR COMMERCIAL AND INDUSTRIAL APPLICATIONS

Folder—"Patrons Won't Tolerate CSC"; Folder—"When Production is Cramped by the Weather";

Folder—"There's Trouble in the Air"—all illustrated, bearing on Kathabar Comfort, Industrial Comfort and Industrial Processing Atmospheres for Commercial and Industrial applications, with the use of Kathabar humidifying and dehumidifying equipment. Surface Combustion Corporation, Toledo, Ohio.

STAINLESS-CLAD STEEL

Price List—16 pages, for Silver-Ply stainless-clad steel, containing based prices for sheets and plates of Silver-Ply for twelve grades of cladding, in proportionate thicknesses of cladding from 5 to 50 per cent; section on standard classification of extras for plates includes table on machine, shearing and flatness tolerances, estimated weights, and size limits for standard production plates and sheets; standard classification of extras for sheets includes extras for finish, shearing, size, quantity, etc.; last section contains prices for forming standard flanged and dished heads, A.S.M.E.-A.P.I. flanged and dished heads, and elliptical dished heads, as well as prices for machining heads. Jessup Steel Company, Washington, Pa.

EMPLOYEE RELATIONS PROGRAM

Handbook—"Partners in Revere," illustrated, designed to give new and old employees an insight into the background and functions of Revere, and at the same time to keep before them the rules and regulations necessary to the conduct of the company's business.

Revere Copper and Brass, Incorporated, 230 Park Avenue, New York City.

MATERIAL HANDLING MACHINERY

Office Publication—"The Labor Saver," Volume 188, presenting latest information on new material handling designs and problems Stephens - Adamson Manufacturing Company has helped to solve with its conveying, elevating, screening and transmission equipment.

Stephens - Adamson Manufacturing Company, Aurora, Ill.

ROTARY AIR PUMPS AND COMPRESSORS

Catalog—New loose-leaf edition of the Gast Rotary Air Pump and Compressor catalog, containing concise data on the Gast augmented line designed to meet especially the needs of defense production, including the new Gast V-Belt Driven Air Pump; publication presents illustrations and detailed descriptions of various models, together with specifications, engineering data and performance tables for 10 sizes of Gast rotary air pumps, $\frac{1}{2}$ to 23 C.F.M., vacuum to 28 inches and pressures up to 30 pounds; section of catalog is devoted to photographs and descriptions of Gast applications in industry and as standard equipment on many types of machines.

Gast Manufacturing Corporation, Benton Harbor, Mich.

1942 Calendars—Calendars for 1942 have been received by the Manufacturers Record from the following: Norfolk & Western Railway Company, West Virginia Pulp & Paper Co., Luke, Md.; Atlantic Waste Paper Company, Baltimore Commercial Bank, A. W. Harrison & Son, Inc., Remington Rand, Inc., O. F. H. Warner & Co., Inc., Baltimore Photo Engraving Company, all of Baltimore; Ketchum, MacLeod & Grove, Inc., Pittsburgh, Pa.; Mall Tool Company, Chicago, Ill.; Hercules Powder Company, Wilmington, Del.; Ingalls Shipbuilding Corporation, Pascagoula, Miss.

"Queen City of the Carolinas"—The story of Charlotte, "The Queen City of the Carolinas," has been compiled and published by The Charlotte News, Charlotte, N. C. As presented by factual data and many interesting and attractive illustrations, the story is published in the form of a booklet which observes in a foreword that it is an exhibit of what Charlotte "has become and what it aims to be." The city has reached the 100,000 population class and this is cited as a reason for calling the attention of the world to the growth and progress of the city.

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3000 Rooms in the South

Size means little to service, but twenty-five years in pleasing customers in Southern hotels, *plus size*, guarantees your satisfaction in these hotels.

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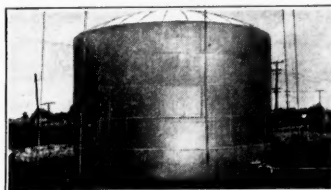
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This applies to field as well as shop built equipment.

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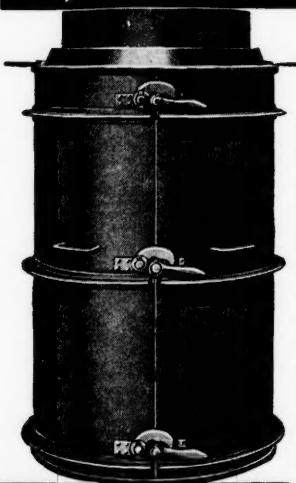


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HAND or WET PROCESS



Make concrete pipe on the job with Quinn Pipe Forms. They can be handled by less experienced labor and produce uniform concrete pipe of highest quality. Quinn Pipe Forms make pipe conforming to A. S. T. M. requirements as to wall thickness and other standards.

Quinn Heavy Duty Pipe Forms are built to give more years of service—sizes for any diameter pipe from 12 to 84 inches—tongue and groove or bell end pipe—any length. Backed by over 30 years of service in the hands of contractors, municipal departments and pipe manufacturers.

HEAVY DUTY PIPE FORMS

Our Heavy Duty type with Adjustable Locks is shown above. Quinn Heavy Duty Forms are also available with a new wedge-type lock.

Medium Duty Pipe Forms

Meet the demand for low cost equipment that produces a uniform quality of pipe in smaller amounts. For making pipe 12 to 60 inches in diameter—any length.

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Get complete information on prices and Special Construction Features of Quinn Pipe Forms. Give us size of job for estimate on your pipe form needs.
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ALL TYPES
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Meeting all specifications

CAPACITY—8000 tons daily

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Boxley, Greensville County, Va.

W. W. BOXLEY & COMPANY

Boxley Building, ROANOKE, VA.

Construction Record in 1941

(Continued from page 33)

for 1941 to be \$1,400,469,000, or almost 48 per cent of all work. This aggregate represents mostly Federal-financed projects for facilities needed to augment those already operating to supply the military needs of the United States and many other countries. Plants must be built to

round out the country's production of steel, ships, tanks, aircraft, gasoline, guns, and chemicals.

The percentage of the construction total embodied in the \$926,902,000 sum of public building contracts is over 31 per cent for 1941. This type of construction is also scheduled for huge expenditures during the current year. Facilities are now available for about one and one-half million soldiers. Reports say this army is to be increased to three times that number, perhaps decidedly more. Many new training centers, military establishments and air and naval bases must be built under this vastly expanded war program.

Monthly totals for Southern construction, according to *Manufacturers Record* tabulations follow: January, \$141,717,000; February, \$195,880,000; March, \$204,834,000; April, \$118,098,000; May, \$117,338,000; June, \$373,914,000; July, \$370,899,000; August, \$434,131,000; September, \$306,742,000; October, \$250,485,000; November, \$220,546,000, and December, \$187,624,000.

Industrial

(Including Private Utilities)

	December, 1941 Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1941
Ala.	\$65,000	\$6,095,000	\$159,456,000
Ark.	56,533,000	255,000	224,306,000
D. C. ....	.....	2,500,000	3,180,000
Fla.	1,572,000	2,410,000	24,037,000
Ga.	1,399,000	2,295,000	35,131,000
Ky. ....	.....	25,000	53,440,000
La.	1,440,000	24,424,000	140,268,000
Md.	3,640,000	2,240,000	87,860,000
Miss.	45,000	1,140,000	33,977,000
Mo.	330,000	5,687,000	70,777,000
N. C.	384,000	732,000	19,009,000
Okl.	85,000	5,918,000	103,699,000
S. C.	35,000	360,000	12,780,000
Tenn.	127,000	283,000	105,916,000
Tex.	7,810,000	90,694,000	233,437,000
Va.	709,000	1,525,000	13,164,000
W. Va.	15,675,000	10,245,000	81,712,000
Total	\$89,249,000	\$156,848,000	\$1,400,469,000

Troop Carrying Gliders

(Continued from page 31)

unlike the first type, are heat softening, that is, when heat is applied they turn soft and when cooled they harden. This type can be molded and remolded. This group—to give the scientific names—includes cellulose acetate, cellulose nitrate, polystyrene and methyl methacrylate.

A plastic in itself lacks proper tensile strength. It is, however, hard and therefore will absorb high shear and impact loads. As an adhesive, it tenaciously grasps when used as a bond. Hence, plas-

tic is suitable in a stressed and loaded structure only when a filler agent, such as cloth or wood is used and thereby becomes a bonding agent supporting fibers of complex structures and transmitting a load from one to the other. Because of its favorable weight-strength ratio, wood is a practical filler for aircraft structures and therefore, veneers can easily be used.

Allied Aviation Corporation is one of the largest companies in this country devoted exclusively to the manufacture of molded plywood aircraft and aircraft structures. All their present efforts and facilities are devoted to the development and production of aircraft structures under the national defense program which would otherwise require aluminum or other strategic and difficult-to-secure metals.

Southern Field Offices of the Division of Contract Distribution

(Continued from page 32)

VIRGINIA

Richmond
Julian Lorin Mason, Mgr.
Johnson Publishing Bldg.
Fifth & Cary Streets

WEST VIRGINIA

Wheeling
M. S. Sloman, Acting Mgr.
1025 Main St., Hawley Bldg.

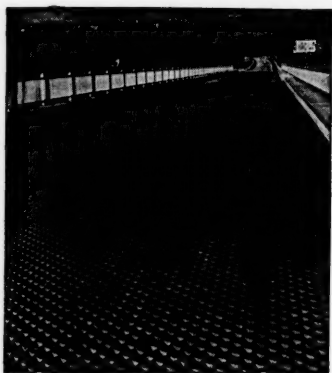
1942 Tulsa Oil Show Cancelled

Exhibitors and directors of the Tulsa International Petroleum Exposition, meeting in Tulsa on December 8, agreed to postpone the May, 1942, Oil Show until the emergency is over. No dates for the next exposition were fixed, but the appointment of a committee of nine to twelve members representing all phases of the industry was approved to advise with the Show's executive committee concerning the dates and policy of the Exposition in the future. W. G. Skelly, President of the Skelly Oil Company of Tulsa, is President of the Exposition, with William B. Way, General Manager.

United States Steel Makes Miller Vice-President

Charles R. Miller, Jr., formerly Director of Purchases of the United States Steel Corporation of Delaware, Pittsburgh, Pa., has been elected Vice-President—Purchases, and a member of the Executive Committee and Board of Directors of the Corporation, effective January 1, 1942, according to announcement by Benjamin F. Fairless, President. Mr. Miller has been associated with United States Steel Subsidiaries for more than 44 years, first entering the employ of the Carnegie Steel Company as an office boy in 1897.

NOT A PENNY for MAINTENANCE



Cairo Approach N. Y. State Hy. Dept.
Catskill, N. Y. Engineers

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EXECUTIVE Sales--Managerial

Nationwide experience successfully directing and personally handling sales to individuals, corporations and committees. Available soon. Age 41. Christian. Married. Pleasant personality, aggressive type. Has held only two positions in business career. Able to conceive and direct programs adapting business or markets to present conditions. Qualified for responsibilities. Reasons for making change and details of experience will be sent.

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FOR BRICK, TILE AND BLOCK,
FROM SMALLEST TO LARGEST CAPACITY.

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CANNING MACHINERY

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FRUITS-VEGETABLES-FISH-CITRUS FRUITS-ETC.

A. K. ROBINS & CO. INC.

BALTIMORE, MD.

WRITE FOR CATALOGUE

Two Destroyers Launched in South

Two new destroyers, the USS Beatty and the USS Tillman, were launched December 20 at the U. S. Navy Yard, Charleston, South Carolina. Contracts for their construction were awarded December 16, 1940, and the keels were laid May 1, 1941. Standard displacement of these destroyers is 1630 tons.

Mrs. Charles H. Drayton, Charleston, S. C., served as sponsor for the USS Beatty, named in honor of her father, the late Rear Admiral Frank Edmund Beatty, U. S. Navy. The USS Beatty is the first Naval vessel so named.

Mrs. Charles Sumner Moore, Atlantic City, N. J., sponsored the USS Tillman, named in honor of her father, the late Hon. Benjamin Ryan Tillman, U. S. Senator from South Carolina. The USS Tillman is the second Naval vessel of this name.

The new 10,000 ton cruiser USS Columbia, sixth vessel of that name, was launched at the New York Shipbuilding Corp., Camden, N. J., last month and was sponsored by Miss Jane Adams Paschall, Columbia, S. C.

Priorities

(Continued from page 46)

P-20 extends priority assistance in securing the materials to the filling of certain specified orders for new locomotives. P-21 provides priority assistance in the repair and rebuilding of steam, electric and Diesel locomotives, whether for railroad, mining or industrial use. Each of the orders extends a preference rating of A-3.

Inventories Subject to Requisition—Donald M. Nelson, Director of Priorities, today appealed to manufacturers holding inventories of materials greater than their immediate needs to make their surpluses available for military production.

His appeal followed the announcement of creation of the new Inventories and Requisition Section of OPM which has power to requisition necessary materials.

"We know," Mr. Nelson said, "that many manufacturers both large and small are holding inventories, particularly of metals, in excess of present demand.

"These metals are needed, and needed now, for war. Patriotic and voluntary release of inventories will help us, at the moment, more than any other one thing to do just that.

"Iron and steel scrap is equally as important as any raw material. I appeal to everyone who has scrap on hand in quantities to respond to this appeal."

Mr. Nelson asked manufacturers to wire to him directly giving size of inventories of critical materials and amounts of each they can spare for allocation to war production.

Randleman Mills, Incorporated

Randleman Mills, Inc., 498 Seventh Avenue, New York City organized with F. Kloeckner, president, G. H. Conze, vice-president and L. W. Conover, secretary-treasurer. The new firm began operations November 1 at a plant at Randleman, N. C., purchased from the Deep River Manufacturing Company. It is producing yarns, 15 to 40 count, of cotton and cotton and staple rayon blend, with an average annual volume of 1,000,000 pounds. The company plans to remodel its building, overhaul present machinery and install 2000 new spindles. John R. Rice is the general manager of the Randleman plant.

ACCURATE FLOW CONTROL

means uninterrupted production from the assembly line



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positive control*

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NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

New Plants and Expansions in the South

(Continued from page 35)

MISSISSIPPI

Pipe lines—United Gas Pipe Lines Company of Shreveport, La., applied for permission to lay two pipe lines, 100 ft. apart and approximately 3-ft. below the bottom of Pascagoula River near Vancleave; another across Smith Lake, a tributary of the river, located about 3 miles northeast of Moss Point.

BILOXI—buildings—Biloxi Port Commission, 412 Reynoir St., received bids December 29 for construction of machine shop and other buildings at boat building plant; I. Daniel Gehr, Archt.

CLARKSDALE—grain elevator—Rust Engineering Co., Birmingham, Ala., estimated cost of construction of 750,000 bushel grain elevator for City, would be \$165,000; cost includes foundations with piling, storage bins, unloading hoppers, unloading equipment, conveyors, loading equipment and conveyors.

PASCAGOULA—repair docks—Ingalls Shipbuilding Corp. will establish temporary outfitting and repair docks for ships.

MISSOURI

Expansion—American Telephone & Telegraph Co., James H. Ballard, Manager, Springfield, Mo., received authority from Federal Communications Commission to supplement its facilities between southwest Missouri and Tulsa, Okla.; approximate cost \$912,000; will construct over 100 miles of cable, nearly all underground.

KANSAS CITY—building—Southwestern Bell Telephone Co. let contract to Lonsdale Brothers Construction Co., Telephone Building, for construction of telephone exchange building, 59th St.

NORTH KANSAS CITY BR. KANSAS CITY—plant—Continental Can Co., C. C. Conway, Chairman of Board, 1400 Guinotte St., Kansas City, plans construction of plant, one block west of Burlington Ave.

ROBERTSON—plant—McDonnell Aircraft Corp., James S. McDonnell, Sr., President; William L. Desloge, Purchasing Agent, Lambert-St. Louis Air Field, have revised plans near completion and will soon call for bids for construction of airplane parts plant, adjoining Lambert-St. Louis Air Field; concrete and metal siding; 1 and 2-stories; financed by Defense Plant Corp.; Palmer & Lamdin, 1020 St. Paul St., Baltimore, Md., Archt.

ST. LOUIS—expansion—Trustees of St. Louis-San Francisco Railroad applied for authority to spend \$1,495,905 for additions and betterments for 1942.

ST. LOUIS—expansion—Federal Judge Davis on petition of the receivers, Norman B. Pitcairn and Frank C. Nicodemus, Jr., authorized expenditures of \$687,800 for rail and fastenings, cost of installation and purchase of 3 Diesel switch engines for \$240,000 to the Wabash Railway Co., Exchange Bldg.

ST. LOUIS—expansion—Scullin Steel Co., 6700 Manchester St., plans expansion of building and facilities at a cost of approximately \$2,600,000; ground will be broken on 3½-acre site adjoining No. 1 plant; building will cost \$500,000; U. S. Government awarded contract to company for production of welded armor plate for tanks.

NORTH CAROLINA

DURHAM—expansion—Duke Power Co., Charles Burkholder, Vice President, purchased 30 acres of land, adjoining Southern Power Co., near University Station; plan doubling capacity of plant.

DURHAM—expansion—Defense Plant Corporation, RFC subsidiary, at request of Navy Department, authorized an increase in its contract with Wright's Automatic Tobacco Packing Machine Co., for additional facilities for plant, from \$500,000 to \$600,000; ordnance equipment will be manufactured; company will operate facilities under a 7 year contract; title will remain in Defense Plant Corp.

FONTANA—dam—House approved a \$25,000,000 appropriation to initiate a new TVA defense power program; approved program

provides for beginning work on the \$50,000,000 Fontana Dam in North Carolina, an additional generator at Watts Bar steam plant in Tennessee and 10 additional generating units at TVA hydroelectric dams already operating.

WILMINGTON—drydock—Industrial Committee of Greater Wilmington Chamber of Commerce proposes construction of drydock and repair base.

OKLAHOMA

Expansion—Oklahoma Natural Gas Co., Tulsa, plans expenditure of \$1,410,000 during the next year for additions to and extension of services in Oklahoma.

Refineries—Government plans construction of 3—100 octane gasoline refineries, perhaps a fourth, in Oklahoma; total cost approximately \$5,000,000; Champlin Refinery Co. will be requested to build a plant of 1,000 barrels at Enid; approximate cost \$1,500,000; Phillips Petroleum Co. will erect plant of 1,022 barrels capacity at Oklahoma City; discussions being made with Continental Oil Co. for a plant at Ponca City.

TULSA—improvements—Oklahoma Natural Gas Co., Joseph Bowes, President, plans spending \$1,410,000 in the coming year for the following improvements: increase of gas reserves in connection with system, \$150,000; addition of new transmission lines and relocation and replacement of present lines, \$550,000; improvement of distributing systems in cities in Tulsa area, \$600,000.

SOUTH CAROLINA

GEORGETOWN—factory—Agar Box Company, subsidiary of International Paper Company, is erecting box factory, adjacent to Southern Kraft Corp.

SPARTANBURG—cannery—Legislative Delegation voted to cooperate in construction of \$125,000 peach cannery and storage plant, adjacent to county curb market on Asheville Highway; will include 300 to 400 cold storage lockers; will have seasonal capacity of 500 cars or 200,000 bushels; a federal grant of \$100,000 has been approved; J. Hertz Brown, interested.

TENNESSEE

NASHVILLE—plant—Universal Concrete Pipe Co., 235 High, Columbus, Ohio, c/o I. A. Heinzman, District Manager, will soon call for bids for construction of plant, 6th Ave.; approximate cost \$75,000.

TEXAS

Plant—Office of Production Management approved and recommended to Defense Plant Corp. construction of a \$50,000,000 TNT plant, on Caddo Lake near Marshall, Tex.

Blast furnace, etc.—Defense Plant Corporation authorized a contract with Sheffield Steel Corporation of Texas for construction of a blast furnace and steel plant facilities on Houston Ship Canal near Houston; estimated cost \$22,670,855; plant will have estimated annual capacity of 274,000 tons of pig iron and 216,000 tons of steel plates; Sheffield Steel will operate facilities under a 5-year contract; Sheffield Steel Corporation of Kansas City, Mo., parent corporation.

DAINGERFIELD—steel mill—Texas Iron, Steel & Coke Co., W. W. Lynch, 1920 W. Colorado, Dallas, Director, selected tentative sites for location of proposed \$33,000,000 iron and steel mill which is awaiting approval by OPM.

DALLAS—enlarging—Dallas Power & Light Co., George L. MacGregor, President, asked for approval of \$2,260,000 expansion program; plans enlarging generating plant at Mountain Creek.

GALVESTON—expansion—Monsanto Chemical Co., reported, acquired Texas City Sugar Refinery and plans to use property for manufacture of synthetic rubber.

GALVESTON—expansion—Gray's Iron Works, Inc., Jack Walmsley, President, plans spending \$200,000 for building of bulkheads and other facilities on the ship building site, in connection with \$2,250,000 contract with Maritime Commission for construction of 4 steel coastal tankers; includes installation of machinery.

HOUSTON—plant—War Department selected general area of Houston as location for a plant to manufacture gun tubes; will

be known as Dickson Gun Plant.

HOUSTON—plant—Hughes Tool Co., Noah Dietrich, Vice President, will operate gun plant owned by Government; approximate cost \$12,000,000; will manufacture gun tubes for the army, and about 25,000 cannon per year; known as Dickson Gun Plant.

KARNACK—TNT plant—War Department announced a \$25,000,000 plant will be erected near Karnack on Caddo Lake, 20 airline miles northwest of Shreveport, La. and 15 miles northeast of Marshall, Tex., for the manufacture of trinitrotoluene; will be known as "Longhorn Ordnance Works"; operated by Monsanto Chemical Company of St. Louis, Mo.; headquarters will be established at Marshall; 12,000-acre site selected; will supply explosives for shell loading plants being constructed at Doyline, east of Shreveport, La. and Texarkana; survey of site made by Stone & Webster Engineering Corp., Boston, Mass.

LONGVIEW—expansion—Stockholders of Madaras Steel Corporation of Texas voted to increase preferred stock of company by 1,000 shares to expedite completion of tests now being made at plant here and for further expansion; when present tests are completed company expects to apply for government loan to build other steel plants for which plans are now being prepared; Madaras process manufacture steel directly from East Texas iron ore with natural gas; process is so designed that it would be economical to build and operate ore reduction plants near large deposits of ore in Marion, Cass Counties or near Rusk and Palestine.

LUFKIN—expansion—Southland Paper Mills, Inc., E. L. Kurth, President, received priority rating in Washington for doubling newsprint plant's capacity of 50,000 tons annually; include a second newsprint making machine and a chemical pulp unit; directors approved a \$900,000 stock issue; has \$1,500,000 RFC loan.

VIRGINIA

ALEXANDRIA—expansion—Virginia Public Service Co. granted permission to install generating equipment at estimated cost of \$500,000 at the site of its new power plant adjacent to present steam generating station; utility applied for second permit for a \$225,000 building to house the generating equipment; plans for building approved; power plant addition has been designed to increase capacity of generating station from 30,000 to 45,000 k.w.; excavation and reinforcement of the ground site is nearing completion and construction of building has now been started; total cost of the project including generating equipment and site will be \$1,600,000.

NARROWS—expansion—Appalachian Electric Power Co. plans to increase its present output at the Glen Lyn Power Plant, from 80,000 k.w. to 160,000.

NORFOLK—equipment—Seaboard Air Line Railway received authority to purchase \$2,448,000 worth of rolling equipment; includes 2 Diesel passenger locomotives and 8 Diesel switching engines; Federal Judge Luther B. Way granted permission for purchase of 500 box cars; 100 flat cars; 100 hopper cars and 50 hopper cars for cement.

ROANOKE—expansion—Directors of Chesapeake & Potomac Telephone Company of Virginia, R. C. McCann, Vice President and General Manager, authorized expenditure of \$1,500,000; \$993,000 for day-to-day work of installing, disconnecting and moving telephone facilities on subscribers' premises and minor outside plant construction; \$125,000 for additional local and long distance equipment to be provided at Newport News; \$127,500 to provide additional local equipment at Richmond; \$67,000 for additional long distance circuits and cable.

WEST VIRGINIA

DUNBAR—building—Chesapeake & Ohio Telephone Company of West Virginia plans construction of \$130,000 central office unit; 1-story; 75x100-foot lot at Park and Grosscup Aves.; A. H. Clark, District Commercial Manager.

POINT PLEASANT—plant—War Department made tentative selection of site in vicinity Point Pleasant, for construction of

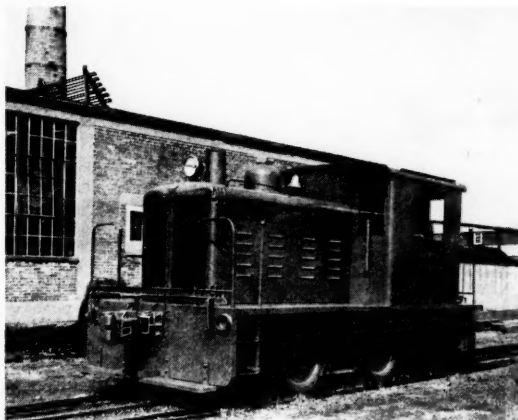
(Continued on page 58)

DON'T WONDER WHY--INVESTIGATE

There are many reasons why steel mills, shipyards and other large industrial plants use WHITCOMB locomotives, and the following 8 are among the important ones:

1. Rugged Construction
2. Lower Fuel Costs
3. High Availability
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5. Ease of Operation
6. High Starting Torque
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Today service is hard, straining, constant. WHITCOMB locomotives meet all these demands and then some.



DIESEL—GASOLINE—ELECTRIC—The products of a pioneer.



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Mr. Check says:

**"J&L PERMASET
Pre-formed Wire Rope**

Quickly available
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• **FLEXCO H D RIP PLATES** are used in repairing rips and patching conveyor belts. The wide space between outer bolts gives the fastener a long grip on the edges of the rip, while the center bolt prevents the fasteners from bulging.



• **FLEXCO H D BELT FASTENERS** make a strong, tight butt joint with long life. Recessed plates embed in belt, compress belt ends and prevent ply separation. Six sizes in steel and alloys.

FLEXIBLE STEEL LACING COMPANY
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Keep your conveyor belts going with

FLEXCO
HD BELT FASTENERS



• Avoid shutdowns and lengthen the life of your conveyor belts and bucket elevator belts by using Flexco HD belt fasteners and rip plates. Thousands of companies have stepped up the performance of conveyor lines and cut costs by using Flexco methods.

Bulletin F-100 shows exactly how to make tight butt joints in conveyor belts with Flexco HD Belt Fasteners. Also illustrates step by step the latest practice in repairing rips and putting in patches.



Write for
your copy

FLEXCO HD BELT FASTENERS
Sold by supply houses everywhere

New Plants and Expansions in the South

(Continued from page 56)

TNT manufacturing plant; will be constructed and operated by private concerns but under control and supervision of the U. S. Army; to be known as the West Virginia Ordnance Works.

SOUTH

President Roosevelt signed third supplemental national defense appropriation bill allotting funds for new hydroelectric developments in southern states, ultimately to cost \$154,200,000; same measure contains money for continuation of work on two other southern dams with estimated total costs of \$76,700,000; Army engineers received appropriations for these new southern power projects:

Georgia—Allatoona Dam, Etowah River, \$3,000,000 toward a total cost of \$16,300,000

to provide an installed capacity of 33,000 k.w.; to be completed December 15, 1944; dam is a unit of Coosa-Alabama rivers project extending from Rome, Ga., through Alabama to the Gulf of Mexico; Coosa River is formed at Rome by union of Oostanaula and Etowah Rivers; dam will be built on the Etowah and mostly in Bartow and Cherokee Counties;

Tennessee—Center Hill Reservoir, Cumberland River, \$2,000,000 toward a total cost of \$25,400,000 to provide an installed capacity of 77,000 k.w.; to be completed September 30, 1944;

Tennessee—Dale Hollow Reservoir, Cumberland River, \$2,000,000 toward total cost of \$14,500,000 to provide an installed capacity of 30,000 k.w.; to be completed March 30, 1944;

In addition bill carried \$5,000,000 to continue work on \$26,300,000 Norfolk Reservoir, White River, Ark., to be completed December 31, 1944; and \$3,100,000 to continue work on \$50,400,000 Wolf Creek Reservoir and dam

on Cumberland River, Kentucky, to be completed September 30, 1945; bill also provides \$200,000 to begin construction of \$530,000 Prattville, Ala., flood control project.

American Telephone & Telegraph Co., and **Southern Bell Telephone & Telegraph Co.**, received authority from Federal Communications Commission to supplement existing facilities between Atlanta and Jacksonville at a cost of \$4,230,000.

Pennsylvania Railroad, Broad Street Station, Philadelphia, Pa., filed application with Interstate Commerce Commission outlining plans for a \$23,081,250 equipment purchase program; asked for authority to issue and sell \$18,465,000 equipment trust certificates, Series M; plans include building of 6,020 freight cars, 50 cabin cars, 15 electric passenger locomotives and 12 steam locomotive tenders, in company's own shops.

Chesapeake & Potomac Telephone Co., **Diamond State Telephone Co.** and **American Telephone & Telegraph Co.**, received authority from Federal Communications Commission to supplement existing telephone facilities between Baltimore and Philadelphia; approximate cost \$1,725,000.

Hope Natural Gas Co., subsidiary of Standard Oil Company of New Jersey, Charleston, West Virginia, applied for a priority rating to construct \$30,000,000 natural gas pipe line from Texas and Louisiana gas fields to defense plants in Kanawha County, W. Va.; 772 miles long; will carry 100,000,000 cu. ft. of natural gas a day at the start; require a year to complete.

Defense Program Awards in the South

(Continued from page 38)

National Youth Administration	1,551,000
Reconstruction Finance Corporation	45,000
CONTRACTS AWARDED NOVEMBER 15 TO DECEMBER 8	
Ordnance	

Wheeling Stamping Co., Wheeling, W. Va., percussion primers, \$52,531.

International Nickel Co., Inc., Huntington, W. Va., cylinders, \$319,485.

Air Corps

Fairmont Aluminum Co., Fairmont, W. Va., aluminum-foil, rod sheet, etc., \$36,513.

Air Conditioning & Refrigeration Supplies, Inc., Charleston, W. Va., stand assemblies, \$165,100.

Chemical Warfare Service

Ohio-Apex, Inc., Nitro, W. Va., chemical, \$47,515.

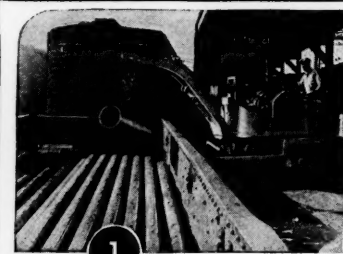
\$23,000,000 Expansion of Texas' New Steel Plant

(Continued from page 30)

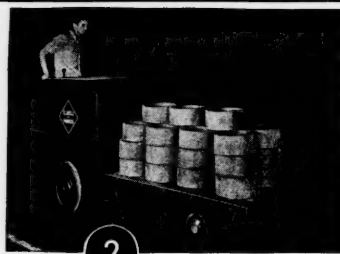
plates. Houston is also near the great cattle raising area which makes Texas the largest user of barbed wire in the nation. Barbed wire will constitute a major portion of the factory's varied wire output in times of peace.

It is also favorably situated in relation to the great oil fields of Texas and Oklahoma. Here the company will find a ready market for such products as plates for storage tanks, I bolts, U bolts, turnbuckles, iron rig nuts and many miscellaneous forgings.

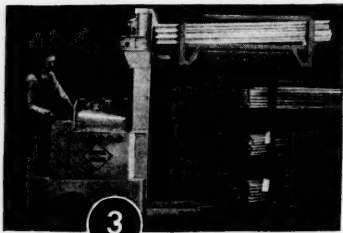
In addition to the tremendous market of the rapidly growing Southwest, the plant has a pathway to the entire world via the Houston Ship Channel to the Gulf. This waterway has recently been deepened and improved by dredging and it is possible for ocean-going freight to load steel from the plant's back door!



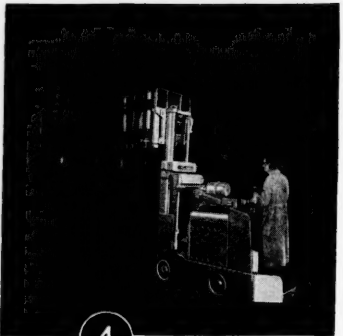
1



2



3



4



5

Build a Complete ELWELL-PARKER Load-Handling System

by adding Trucks, Tractors or Cranes to your Present Elwell-Parker Fleet!

Adding new Elwell-Parker Trucks, Tractors or Cranes increases the size of your Elwell-Parker fleet but multiplies the overall capacity of that fleet to handle materials.

Further, you operate Elwell-Parkers at low maintenance cost—many component parts of these various Units are interchangeable, enabling you to keep more Trucks in service with smaller stocks.

Your advantage in using interchangeable parts in a fleet lies in the fact that they are better engineered of better materials, requiring less frequent replacements.

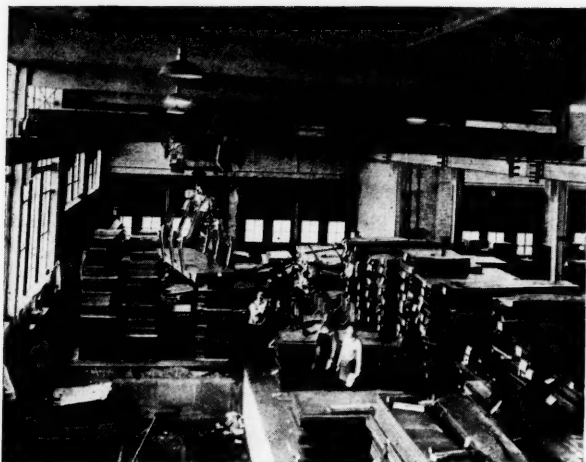
Thus you will benefit in peace as well as war days, by taking advantage of Elwell-Parker's seasoned experience and engineering ability. Thousands of Elwell-Parkers today are operating successfully throughout Industry.

The Elwell-Parker Electric Company, 4238 St. Clair Avenue, Cleveland, Ohio.

ELWELL-PARKER Power Industrial TRUCKS

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CONCO OVERHEAD ELECTRIC CRANES



A 5 ton, 3-motor Conco Overhead Electric Traveling Crane speeds the handling of sheet steel in a defense plant. Conco's important High-Hook-Lift, Low-Headroom features, provide for maximum efficient use of space.

SPEED DEFENSE

CONCO Overhead Traveling Cranes and Jib Cranes are speeding production in such important Defense Plants as the Aviation Division of Studebaker Corporation, Ordnance Division of Westinghouse Electric & Mfg. Co., Ordnance Division of E. I. du Pont de Nemours & Co., McDonnell Aircraft Company, American Locomotive Company and many others. There is a size and style of Conco Crane to fit your defense production needs, too. Conco Overhead Electric Traveling Cranes have the strength, power and durability to withstand rigorous, continuous use. You will be interested in specifications and quick delivery of a Conco Crane designed to meet your individual requirements. Write us now for a complete proposal.

Conco Engineering Works manufactures a complete line of hand-powered and electric cranes, hoists and trolleys.

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DIVISION STREET
MENDOTA, ILLINOIS

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Asphalt Roller



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ESTABLISHED
1905



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REGISTERED TRADEMARK

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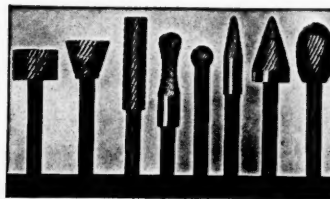
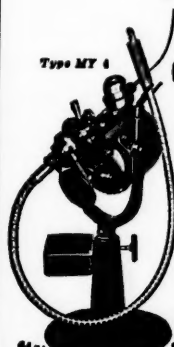
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GROUND ROTARY CUTTERS



N. A. STRAND & COMPANY

MAIN OFFICE AND FACTORY

5001 - 5009 No. WOLCOTT AVE., CHICAGO

The South's War Effort-- Ordnance

(Continued from page 21)

in alkaline and fresh water and then given cold water washings to remove all impurities.

It is at this point that the nitrocellulose enters the actual powder line. In the dehydration house a charge of wet nitrocellulose is dumped into a hydraulic press and compressed into a block. Alcohol is pumped through the block in the press forcing out the water. Much higher pressure is then applied which presses out most of the alcohol. The dewatered nitrocellulose is sent to a block breaker, which then breaks the block into small pieces.

The mixing machine adds ether and alcohol and certain stabilizing chemicals and the mass is worked until it is mealy, with a more thorough mixing in the macerators. The mixed powder is then dumped into a preliminary block-forming press and under pressure it is made into cylinders 12 inches in diameter and 24 inches long. The blocks are placed in a "macaroni" press, where the powder is forced through a fine mesh screen. The material is then reblocked in a press similar to the preliminary block-forming press.

One or two blocks are then put into the finishing press, subjected to a pressure of several thousand pounds per square inch, pressed through dies and are transformed into long spaghetti-like strings.

These strings have either one or seven longitudinal holes formed by the dies. The strings are then fed into cutting machines, which cut them into grains of the desired lengths. Diameter and length of the grains are varied according to the ballistic characteristics required.

The powder grains are then taken to the solvent recovery building where they are treated for several days and most of the ether and alcohol recovered. As the powder still contains too much solvent for use, it is taken to the "water dry" where it is placed in hot water. After the solvent content is sufficiently reduced, the powder is placed in a building where warm air blown over and through it dries it further.

Cannon powders require no glazing. Rifle powders are glazed with graphite to make them flow freely. Rifle powder is sieved and cannon powder sorted to remove imperfect grains. The various batches are blended in blending houses to obtain powder of uniform ballistics and finally packed ready for storage or shipment to loading plants.

Aircraft

(Continued from page 19)

produce the long, luminous tubes.

Just as the Martin Company duplicated its Number 2 bomber assembly plant at Omaha, so a similar policy was followed by North American at Kansas City. Construction was started early in the year. It was at this plant that the first automo-

(Continued on page 62)

For spotting your cars-- JONES CAR PULLERS

YOU will be surprised how much time can be saved in the spotting and switching of cars by using a Jones car puller. These sturdy, compact units will speed up car handling to the point where they soon pay for themselves in the saving of time and labor.

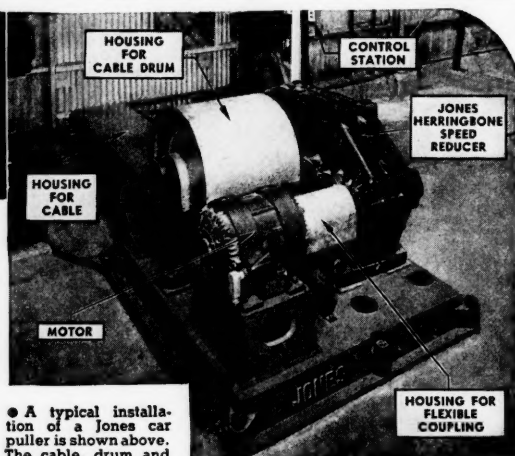
These car pullers are built by Jones as complete units with motor included if desired, or with base to take standard motor, as supplied by the purchaser. The cable drum is driven by a Jones triple reduction Herringbone speed reducer and the control station may be located at a point to give the operator a clear view of the tracks and spotting positions.

Even in plants where comparatively few cars are handled it has been found that a Jones car puller more than pays its way. Prices and complete information will enable you to judge whether such an outfit might pay out in your plant. Write for complete information.

W. A. JONES FOUNDRY & MACHINE CO.
4425 Roosevelt Road, Chicago, Illinois

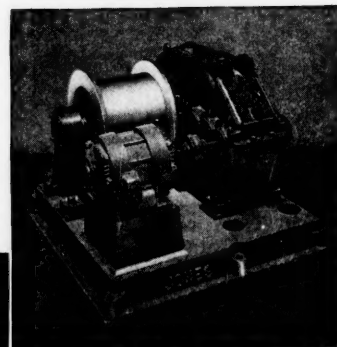
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CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES
ANTI-FRICTION PILLOW BLOCKS • PULLEYS
FRICTION CLUTCHES • TRANSMISSION APPLIANCES



• A typical installation of a Jones car puller is shown above. The cable, drum and couplings are enclosed by sheet metal housings as an extra precaution in this installation to eliminate all hazard from moving parts.

• A complete Jones car puller unit. These outfits are for use with wire rope and are manufactured in a wide range of capacities to suit the number of cars to be handled in each plant.



This ONE-PARTY POWER LINE

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... and Supplies **CONSTANT HIGH SPEED** For EVERY Job

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EQUIPPED AS A DISC SANDER

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DEPENDS ON LAYNE WELLS AND PUMPS

Startling the Nation by going into production just one hundred and twenty days after construction began, the Dallas plant of North American Aviation, Inc., is now rolling out their famous Army AT-6A and Navy SNJ-3 Scout Trainer Planes. Factory and assembly space is completely air conditioned as an aid to accuracy, speed and efficiency in manufacturing.

As was the case with defense projects throughout the Nation, North American chose Layne Wells and Pumps for their water supply. Something over 1,400,000 gallons of water daily is available from their two Layne Units . . . and that capacity can go on day after day, month after month for years to come. In efficiency and dependability Layne Wells and Pumps have no parallel.

When the final chapter of America's greatest war is written, the part played by Layne Wells and Pumps will be a very absorbing story. Certainly in all the world, as hundreds of installations testify, there are no finer Well Water Systems. To meet the country's urgent demand for more and more production you may need more water. Act now! Communicate with Layne. Wire or address,

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Memphis, Tenn.

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Layne-Northwest Company	Milwaukee, Wis.
Layne-Ohio Company	Columbus, Ohio
Layne-Texas Company	Houston, Texas
Layne-Western Company	Kansas City, Mo.
Layne-Western Company of Minnesota	Minneapolis, Minn.
International Water Supply, Ltd.	London, Ontario, Can.

WORLD'S LARGEST WATER DEVELOPERS

The South's War Effort-- Aircraft

(Continued from page 60)

bile-industry-produced parts were assembled.

The Curtis-Wright plant at St. Louis is also one of these sheltered factories where mass production of military and naval planes will be carried on. Cost of the plant is estimated at \$28,000,000. It will need approximately 12,000 men to operate, and when it swings into full production by fall, the huge CW-20, largest twin-engined transport plane in the world will be among its output.

Construction of the Fort Worth and Tulsa plants marks another milestone in aircraft building designs. Each will use as much or more glass than any other such plant, yet there will be no windows. The 4,000 by 320-foot main buildings, where B-24 bombers will be rushed along the assembly lines, have the glass in the form of fibre between steel panels in the walls, which are reportedly shatter-proof.

Ships

(Continued from page 23)

and single-screw propellers were perfected and then both commercial and defense requirements were coordinated. One of the Commission's biggest regrets, as was recently pointed out, was that construction was not started on the modern Pacific

passenger ships capable of quick conversion into aircraft carriers. Such new ships as the new *Mormacmail*, a 17,615 ton C-3 vessel, have served this purpose.

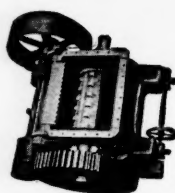
Total construction cost of the ships in the Nation's maritime program is placed at over three billion dollars. By the end of 1943 approximately 1,200 ships altogether of about 13,500,000 tons deadweight will have been placed in operation under the accelerated program brought about by the current war. "Superimposed upon our original long-term program of 500 ships in ten years," recently pointed out Chairman Emory S. Land, retired navy rear admiral at the head of the Maritime Commission, are "The emergency program calling for 200 EC-2 or Liberty ships, the Lend-Lease program of 227 ships, 112 of which are of the emergency cargo type, and the all-out program provided for in the supplementary deficiency bill passed in August, calling for 566 vessels of all types."

This program is mainly responsible for revival of shipbuilding below the Chesapeake Bay. Yards from North Carolina to Texas have risen to the emergency.

Ships named after famous sailing vessels of other generations have slid one after another into the waters off Tampa, Fla., the result of operations of Tampa Shipbuilding Co.

Merrill-Stevens Drydock and Repair Co., at Jacksonville, Fla., is soon to be enlarged into what

(Continued on page 64)

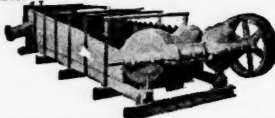


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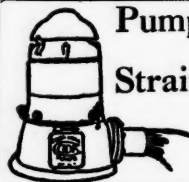
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BUILDS PUMPS FOR EVERY PURPOSE

Myers Pumps are suitable for industrial as well as domestic, agricultural and other applications.

For example, there are Sump Pumps for intermittent or emergency drainage service — Centrifugal Pumps for movement of acids, hot and cold water, brine and other liquids — Plunger and *EJECTO* type Pumps, capable of handling water to 9,000 GPH, for pressure tank and gravity service.

Exclusive design and construction features insure low operation cost and freedom from costly shutdowns and long interruptions for repairs.

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Fig. 2633
Shallow Well
Plunger Type

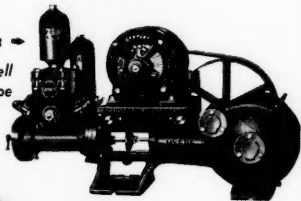


Fig. 3224
Deep Well Plunger Type



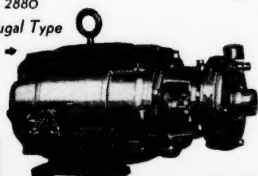
Fig. 3313
EJECTO Type
for Shallow
and Deep Wells

Fig. 3102—Double
Acting Cylinder



Fig. 3246
Sump
Pump

Fig. 2880
Centrifugal Type



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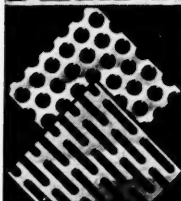
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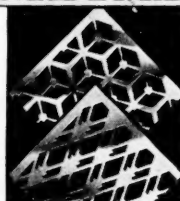


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CHARLES MUNDT & SONS
490 Johnston Ave., JERSEY CITY, N. J.

The South's War Effort-- Ships

(Continued from page 62)

is described as the largest ship repair yard in the Southeast. The Navy Department has allocated \$3,000,000 for expansion there. Included will be a 12,000-ton floating drydock 500 feet and capable of docking the largest ships putting into the port of Jacksonville. The company was established in 1886 and during the first World War held large government contracts. Alabama Dry Dock and Shipbuilding Co., Inc., Mobile operator of five drydocks ranging from 2,500 to 12,000 tons, at the middle of the year was authorized to execute a lease under which naval vessels will be repaired and reconstructed at a cost of \$5,010,000.

At Pascagoula, the third of this closely located trio of towns, is located the Ingalls Shipbuilding Corp., whose facilities are designed exclusively for welded ships. Originally designed for four ways, these operations have since that time been extensively expanded and now are one of the most important Gulf Coast plants for building not only merchant vessels, but naval ships as well. The latest award was for six C-3 ships to cost around \$19,000,000.

Liberty ships, seagoing tugs and huge floating dry-docks are among the shipbuilding activities be-

ing carried on along Louisiana's coastline. At New Orleans are being built 25 of the EC-2 type vessels by the Louisiana Shipyards, Inc. The Delta Shipbuilding Co. recently received notice to build eight more of this "ugly duckling" design, making a total of 33 to be constructed there. Morgan City is where an old wartime yard of 1917 vintage has been brought to life for the purpose of building two 18,000-ton floating docks. Todd-Johnson Dry Docks, Inc. have an agreement with the Government to provide the facilities for naval ship repairs. Avondale Marine Way, Inc., are building the tugs at New Orleans.

Two Texas projects depart radically from the defined paths of standard modern design. One is for what is known as the "Sea Otter," a small submarine-like ship of 270-foot length. The other is the building of concrete barges. If the "Sea Otter II," now undergoing tests, meets with approval, it is expected that large numbers of these vessels will be built at numerous points on southern rivers.

The barges are to be the result of a \$3,285,000 contract landed by San Jacinto Shipbuildings, Inc., at Houston, where the Houston Shipbuilding Corp. is building Liberty ships at its new Irish Bend Island plant. Concrete barges will also be built at Port Wentworth, near Savannah, Ga. An old shipyard there is to be renovated for the purpose by MacEvoy Shipbuilding Co. The first full-scale Sea Otter was built at Orange, Texas. Here also is the Consolidated Steel Corp., constructing 12 naval destroyers at a total cost of \$97,200,000.

TO meet demands on physical and mental strength, business men carrying unprecedented burdens must keep robust, refreshed, clear eyed, keen and alert. Good health is the nation's greatest asset.

The HIGHLAND PINES INN offers unsurpassed hospitality in a charming Southern atmosphere among congenial people; giving mental stimulation and physical refreshment outdoors from the bracing, pine-laden air and warm sunshine.

Rain or showers seldom interfere with continuous outdoor life as the sandy soil promptly absorbs all moisture and the pine trees drink in whatever may remain in the air.

Southern Pines is only 9 hours from Washington; 13 hours from New York; 20 hours from Boston and only halfway between New York and Florida on the main line of the S. A. L. Ry. with through Pullman service. On U. S. Highway number one—For rates and reservations write or wire.

W. E. Flynn, Manager.



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HIGHLAND PINES INN

SOUTHERN PINES, N. C.

Golf—Polo—Riding—Tennis—Racing—Hunting
Canoeing—Motoring

Conco Electric Overhead Crane

The electric overhead crane, illustrated herewith, is being extensively used by the Army and Navy and in defense plants, according to the Conco Engineering Works, Mendota, Ill., manufacturers of the product. The "stripped" view shows gears, shafting, cable and other construction features of the type "D" trolley. The low head room feature, which permits material to be stacked higher with the consequent maximum use of floor space, is achieved in this model by mounting the drum parallel to the hoist motor and bringing the hook block up between. The machine is available from three through



Conco Electric Overhead Crane

fifteen tons. Bridges supplied with the model are constructed with Hyatt Roller, or Timken Roller Bearing trucks. Trolley and hoist gearing are machine-cut from steel blanks, and all shafting is equipped with Hyatt Roller Bearings. Gears and holding brake operate in a bath of oil in oil-tight housing. Leakage of grease and oil is eliminated by the use of positive oil seals. Standard NEMA foot-mounted motors are furnished and any standard type control can be supplied. On direct current cranes dynamic lowering may be used. The hoist is equipped with a large solenoid brake and magnetic type limit switch. Cable is of flexible plow steel. Although compact, all parts of the hoist are easily accessible and individual parts may be removed without disturbing adjoining members. A maximum of hook travel in all directions is provided.

New Product Prevents Rust and Provides Clear Water

Aqua-Clear, a new product which is claimed to prevent rust and provide clear water from metal tanks or pipes and from lead, brass, or black, galvanized or cast water systems, is announced by Sudbury Laboratory, South Sudbury, Mass. The product is also claimed to clear loose rust from old rusty tanks and pipes. It is a clear, tasteless and harmless liquid which is added in small quantities to the water as it is put into the system. The amount required to prevent rust is one ounce to each 100 gallons of water. Somewhat larger quantities are required for the removal of loose rust.

Newspaper Publisher—Lawyer

I am 43 years old. Have recently sold my daily newspaper and will consider position of publicity director, public relations director or take charge of legal department of manufacturing or publishing firm. Have specialized in publishing and corporation law.

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BLUE PRINT MACHINE Buckeye 30" diameter Vertical Cylinder, Special 110 v. lamp, with voltage regulator and ammonia developing tank. Just removed from service because superseded by faster machine. Make offer.

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WANTED: RESPONSIBLE INDIVIDUALS wish to buy control of a successful manufacturing business that can be moved to the middle west. Give full details in confidence. Address No. 9505, care Manufacturers Record.

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In thriving city of 12,000 population with orders on hand for six months operation at nice profit. This plant made better than 20% net profit on invested capital after depreciation in 1941. Will sell outright or 1/4 interest to right party. If you are looking for a going money making business this is your opportunity. Owner wishes to retire on account of health. Minimum amount to handle \$20,000.00. Can finance balance. Write No. 9508 c/o Mfrs. Record
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For Sale: On account of ill health of the owner, a nice fertilizer, corn and feed mill located at Rockingham, N. C. can be bought at an attractive price. The property consists of about 7 acres of land with suitable buildings and good railroad track facilities. If interested, phone, write or call on the undersigned, Fred W. Bynum, Attorney, Rockingham, N. C.

Mines

COLORADO: Huge mining property, values gold and silver, partly developed. Also large Oil Structure, need finances will share interests. A. Riedesel, Mining Exchange Bldg., Denver, Colorado.

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For Sale: Pecans of the paper shell varieties delivered to you 5 lbs. for \$1.50. Larger quantities 20c per lb., f.o.b. Marianna, Fla. L. N. Smith, P. O. Box 627, Marianna, Fla.

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TRENCHERS and BACKFILLERS

- 3—Barber-Greene, 41C, 44B, 44A
- 5—Buckeye Model C-201, 203, C-10, C-24
- 2—Cleveland Baby Model 95
- 4—Parson Model 21, 30, 40
- 2—Parson Model 32 Backfiller

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FOR SALE—USED

- 100 HHP Standard Marine Diesel Engine.
- 120 HHP M & N Marine Diesel Engine.
- 75 Ton ILC Locomotive wrecking crane, with goose neck boom, and 75' HD boom.
- 25 Ton ILC Locomotive crane with 68' boom.
- 2 1/2 cu. yd. Dipper bucket dredge, steel hull, spuds, with 300 HHP oil burning boiler.

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SWITCHING LOCOMOTIVES—STD. GA.

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- 3—10 ton Davenport Diesel Electric
- 3—43 ton G.E. Diesel Electric
- 80 Ton Baldwin 6 wheel Saddle Tank

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Fairbanks-Morse, Diesel Engine, H.P. 120, R.P.M. 360, Model 32-E12.

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